INTER-INSTITUTIONAL EVALUATION OF CAPTIVE REARING FOR THE OREGON SPOTTED FROG (*Rana pretiosa*)

By

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ABSTRACT

INTER-INSTITUTIONAL EVALUATION OF CAPTIVE REARING FOR THE OREGON SPOTTED FROG (*Rana pretiosa*)

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The Oregon spotted frog (OSF; *Rana pretiosa*) is a candidate for listing under the federal Endangered Species Act, and is listed as a Endangered in Washington State, where it is known from only four areas. In 2008, the Washington OSF Working Group, under the guidance of the Washington Department of Fish and Wildlife, began a captive-rearing program to support a pilot translocation effort at a recipient site, Dailman Lake, on Joint Base Lewis-McChord. Eggs for captive-rearing through at least a juvenile stage were collected from two of the aforementioned three areas: the Black River in Thurston County and Conboy Lake in Klickitat County.

By 2009, four institutions had become engaged in this captive-rearing effort: Cedar Creek Correction Center in Littlerock, WA; Northwest Trek Wildlife Park in Eatonville, WA; Oregon Zoo in Portland, OR; and Woodland Park Zoo in Seattle, WA. After the 2009 rearing season came to a close, it became clear that the survivorship of captive-reared OSF varied markedly among institutions. Water temperature strongly influences early development of OSF and represents a key aspect of the captive-rearing protocol, so I considered that water temperature in the early rearing stage may have influenced survivorship. The institutions began to question the benefits of using temperatures around 25°C throughout rearing stages. I considered the alternative non-exclusive possibility that the egg masses may have experienced freeze damage or been sensitized by exposure to sublethal cold temperatures prior to collection and delivery to the rearing facilities. I used literature on the thermal requirements OSF embryo (lower and upper critical limits 6°C and 28°C) to assist identifying potential temperature effects, though recently collected data indicate that critical limits may vary with geographic variation in environmental conditions. I found no relationship between rearing water temperature and survivorship during early rearing. However, late rearing data from, Northwest Trek indicate that a relationship between water temperature and survivorship may exist. Low air temperature prior to egg collection from each area may also have contributed to reduced survivorship at some institutions. In the early rearing stage, some institutions had Black River populations statistical significantly higher than Conboy Lake and Black River populations. In 2009, the survivorship of Black River frogs was higher than Conboy Lake at the three institutions that were rearing both populations.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

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I would like to especially acknowledge Marko Anderson, Harry Greer, and Al Delp at CCCC for the many hours of care and effort they put into the OSF program to produce those very large and thesis-inspiring frogs. Without the support of Dan Pacholke and Hisami Yoshida the frog rearing program at CCCC would have never been possible.

I would like to recognize the rearing institutions that provided data and worked so hard on their OSF rearing programs. At Northwest Trek, Allison Abrahams, Rich Sartor and Dave Meadows dug up data and taught me the nuances of OSF rearing. At Woodland Park Zoo, Mike Teller, Kimberly Cooper and Keith Neitman; and at Oregon Zoo, David Shepherdson, Steve Hash, and Jan Mothershed shared their data and OSF rearing techniques.

I thank my parents, Mike Plomski and Karla Lortz, for supporting me in everything I do and my grandmothers, Monica Smith and Shirley Slotvig, who emabled my academic pursuits. Lastly, I would like to thank my loving husband, Cody Freeman, who has been my rock throughout my college career.

1.0. INTRODUCTION

Amphibians are in a global population decline (Stuart et al. 2004). Among species in decline is the Oregon spotted frog (OSF; *Rana pretiosa*), a species endemic to the Pacific Northwest. Presumed extirpated in California and the Willamette Valley of Oregon, the OSF has some status indicating that it is at risk in every political entity encompassing its remaining range. In particular, OSF is listed as Endangered in Washington State (McAllister and Leonard 1997) and the Province of British Columbia, Canada (Haycock, 2000), and is a candidate for listing as Endangered or Threatened under the federal Endangered Species Act (U.S Fish and Wildlife Service 2010). The species also has a Critical Sensitive status in the state of Oregon (Haycock 2000, Oregon Department of Fish and Wildlife, 2008).

Captive-rearing of amphibians is one important conservation tool for attempting to recover declining amphibians (Rahbek 1993, Griffiths and Pavajeau 2008). In particular, captive rearing may be needed to support translocations, support the supplementation of extant populations, and engage in population rescue where catastrophic loss appears imminent (Abrahamse and Hayes 2009). Despite the importance of captive rearing, the rearing requirements of most amphibians is poorly known (Pough 2007), and the Oregon spotted frog is no exception.

In 2008, the Washington OSF Working Group, under the guidance of the Washington Department of Fish and Wildlife, began a captive-rearing program to support a pilot translocation effort at a recipient site, Dailman Lake, on Joint Base Lewis-McChord. This program, modeled in part on a pre-existing program for OSF in British Columbia, involved captive-rearing of embryos through at least a juvenile stage from two

donor site, Black River in Thurston County and Conboy Lake in Klickitat County. Participating rearing institutions have included: Cedar Creek Correction Center (CCCC) in Littlerock, WA; Northwest Trek Wildlife Park (NW TREK) in Eatonville, WA; Oregon Zoo (OZ) in Portland, OR; and Woodland Park Zoo (WPZ) in Seattle, WA, The OZ and NW TREK participated in rearing the first year, whereas CCCC and WPZ came online in 2009.

The overarching objective of my thesis was to identify the factors that might influence the variability observed in OSF survivorship during rearing. This study was developed post-hoc from rearing data collected in 2008 and 2009, so I drew up a list of possible factors that might contribute to variation in OSF survivorship from those known to affect amphibian development and that rearing institutions could only effectively control in part. Though this resulted in four factors (water temperature, water quality, tank exposure, and feeding techniques) that might contribute to variability in survivorship, I focused on temperature because it had best data to consider it as a potential influence on survivorship. A secondary objective was to suggest, if temperature was shown to have an influence on survivorship, how it might be manipulated to improve survivorship.

1.1. BIOLOGY OF THE OREGON SPOTTED FROG

1.1.1. Taxonomy and Description

The Oregon spotted frog (*Rana pretiosa*) was first described by Baird and Girard in 1853 as a member of the order Anura, the family Ranidae, and the genus *Rana*. Green et al. (1996) first suggested that populations now attributable to the Oregon spotted frog might represent a separate taxon, but it was not formally partitioned from the Columbia

spotted frog (*Rana luteiventris*) as a separate species until 1997 (Green et al. 1996, Green et al. 1997, McAllister and Leonard 1997).

Adult Oregon spotted frogs are medium-sized, and range from about 44-105 mm in snout-vent length. Females are typically larger than males. Ragged-edges black spots with light centers that darken with age are typically present on the head and back. Adults are brown or reddish-brown in color (Leonard et al., 1993; McAllister and Leonard, 1997) and typically become increasingly red with age and larger body size. The undersurfaces are white or cream with dark mottling what is partly overlain by is a vivid fire orange-red, a color wash that increases in extent with age (size).

Figure 1.1 Oregon spotted frog (*Rana pretiosa*).

1.1.2. Distribution

The Oregon spotted frog has a historic range extending from southwest British Columbia, Canada to northeast California (Green et al. 1997, Haycock 2000). Today, there are four known populations in British Columbia and about 30 in Oregon. Until March of 2011, the species was known to exists in only three areas in Washington State,

the upper Black River system in Thurston County and Trout and Conboy Lakes in Klickitat County. Oregon spotted frogs in the upper Black River comprise several units more than 5 kilometers apart that may represent different populations (White 2002); M. Hayes, pers. comm.). In addition, in March 2011, Jennifer Bohannon discovered two new Oregon spotted frog-occupied sites in Whatcom and Skagit Counties; what these sites represent in a population context is currently being evaluated (M. Hayes, pers. Comm.).

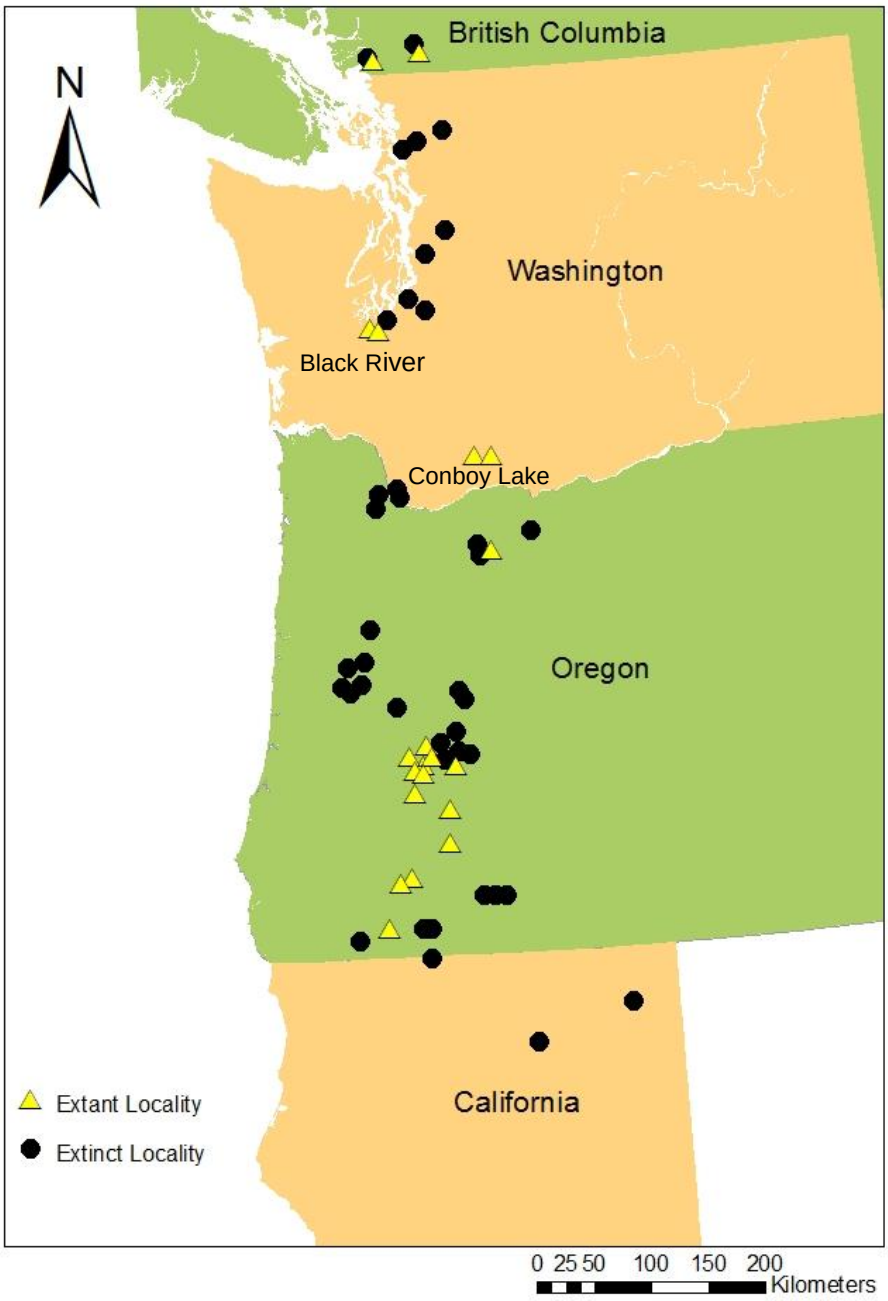

Figure 1.2 Historic and current distribution of Oregon spotted frogs (adapted from Hayes et al. 1997, Haycock 2000)

1.1.3. Life History

Oregon spotted frogs, which breed at spring thaw, usually reproduce from mid-February to mid-March at lower elevations. Populations at higher elevations may delay reproduction as late as May or June, due to the corresponding delay in spring thaw (Licht 1975, McAllister and Leonard 1997, Cushman and Pearl 2007). Eggs are deposited in shallow seasonal water, which warms quickly and is typcially free of predatory fish, providing optimal conditions for development (Licht 1975, McAllister and Leonard 1997, Pearl and Hayes 2004).

Tadpoles emerge from eggs usually within 14-30 days of oviposition (McAllister and Leonard 1997). Tadpoles remain at the site of oviposition for several days before moving to open water to feed on algae, detritus, and bacteria. The tadpoles metamorphose into small frogs of 20-33 mm in length, in 13-16 weeks (Licht 1986, McAllister and Leonard 1997).

Survival from eggs to metamorphosis in the wild is estimated to be approximately 0.5%. The greatest losses are thought to occur shortly after tadpoles emerge from the eggs, and survival rates increase with size (Licht 1974, Cushman and Pearl 2007). Predators, predominantly garter snakes (*Thamnophis* spp.), fish, leeches, larval salamanders, water beetles, giant water bugs, and dragonflies, are large contributors to this low survivorship (Licht 1974, Cushman and Pearl 2007). Juvenile and adult Oregon spotted frogs are thought to have lower mortality rates than embryos and tadpoles (Licht 1974, Watson et al. 2000, Cushman and Pearl 2007).

2.0. ENVIRONMENTAL TEMPERATURE

2.1. Methods

Ambient air temperatures taken at two-hour intervals were obtained for each donor site for intervals of 7 and 14 days prior to the date of collection of embryos for each institution. For 2008 and 2009, temperature data for Black River donor sites were obtained from the Olympia Airport and The Evergreen State College (TESC). Temperature data for Conboy Lake for 2009 were obtained from Champion Pacific Timberland Weather Data, which was provided by Port Blakely Tree Farms LLP. Temperature data for Conboy Lake were unavailable for 2008. I present temperature data for each of the two pre-collection date intervals for each institution using box plots. A Mann-Whitney U Test ($p < 0.05$) . A Mann-Whitney U Test ($p < 0.05$) was used to determine significant differences in temperature between the Black River and Conboy Lake sites.

2.2. Results

The mean temperatures for Black River 7 and 14 days prior to embryo collection were significantly warmer in 2008 than in 2009 for NW TREK (Fig 2.6, 2.7). Temperatures in 2009 were significantly higher at Black River than Conboy Lake both 7 and 14 days prior to embryo collection. Temperatures prior to the second embryo collection at WPZ increased significantly from temperatures prior to first embryo collections for Black River 7 and 14 days prior to collection. Temperatures prior to the second embryo collection at NW TREK (2009) increased significantly from temperatures prior to first embryo collections for Conboy Lake 14 days prior to collection (Fig 2.3, 2.4, 2.5). The Conboy Lake recorded periods of approximately ≥10 hours of temperatures

<1°C 14 days prior to embryo collection for all rearing facilities, and Black River recorded periods of 10 hours under 1°C 14 days prior to embryo collection to OZ, NW TREK, and the first collection for WPZ in 2009.

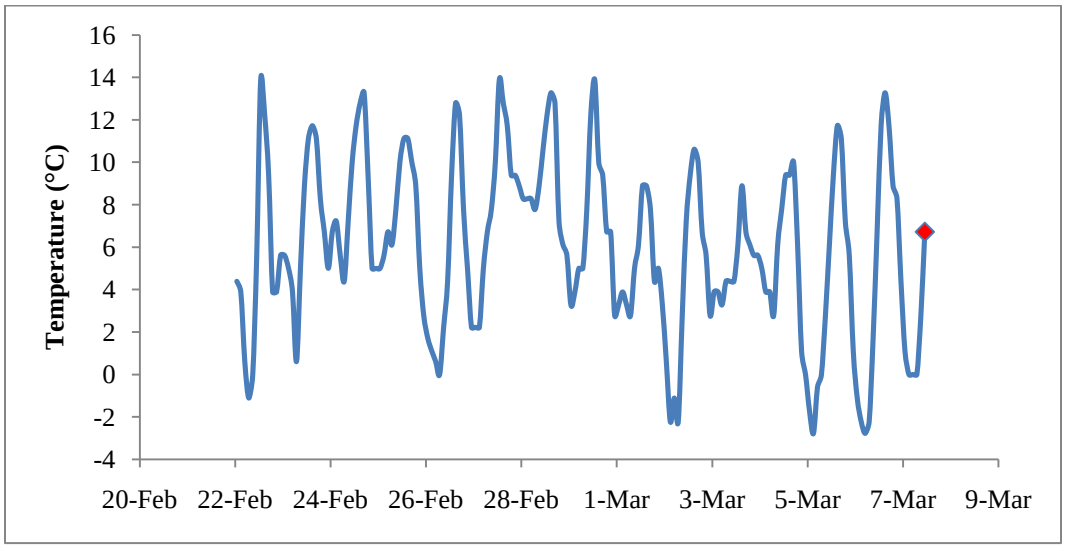

Figure 2.1. 2008 Olympia Airport Weather Data: representing Black River sites prior to OSF embryo collection. Ambient air temperature recorded every two hours for 14 days prior to embryo collection. Embryo collection date for Northwest Trek is indicated by red diamond.

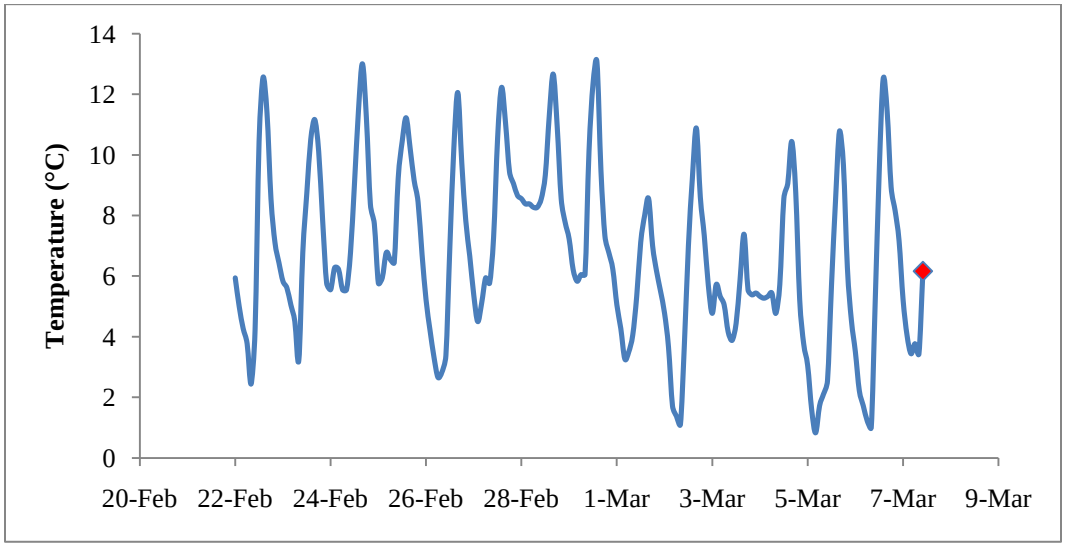

Figure 2.2. 2008 The Evergreen State College Weather Data representing the Black River site prior to OSF embryo collection. Ambient air temperature recorded every two hours for 14 days prior to embryo collection. Embryo collection date for Northwest Trek is indicated by red diamond.

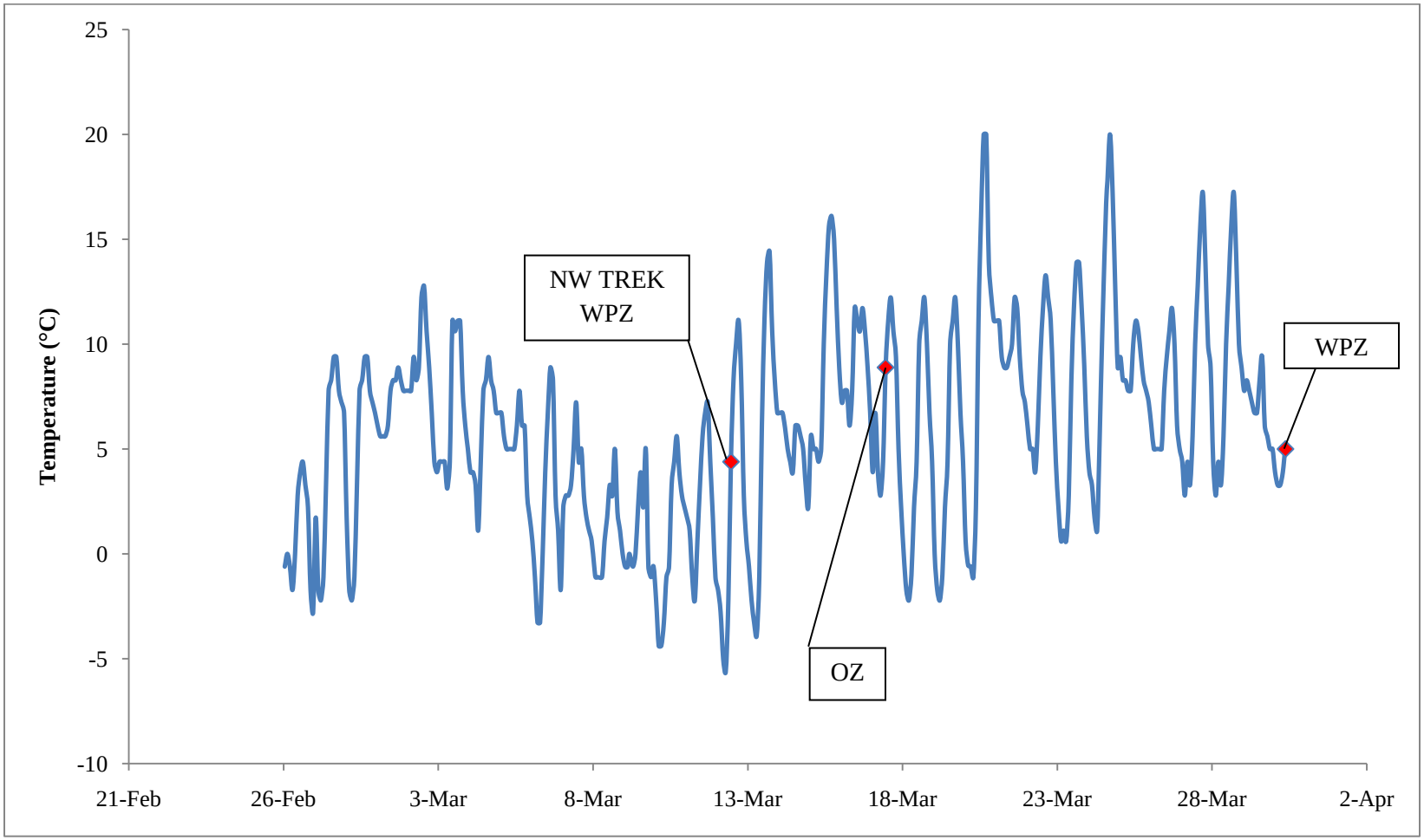

Figure 2.3. 2009 Olympia Airport Weather Data: representing the Black River sites prior to OSF embryo collection. Ambient air temperature recorded every two hours is shown for 14 days prior to the embryo collection for all institutions combined. Embryo collection date for Northwest Trek (NW TREK), Woodland Park Zoo (WPZ), and Oregon Zoo (OZ) is indicated by red diamond.

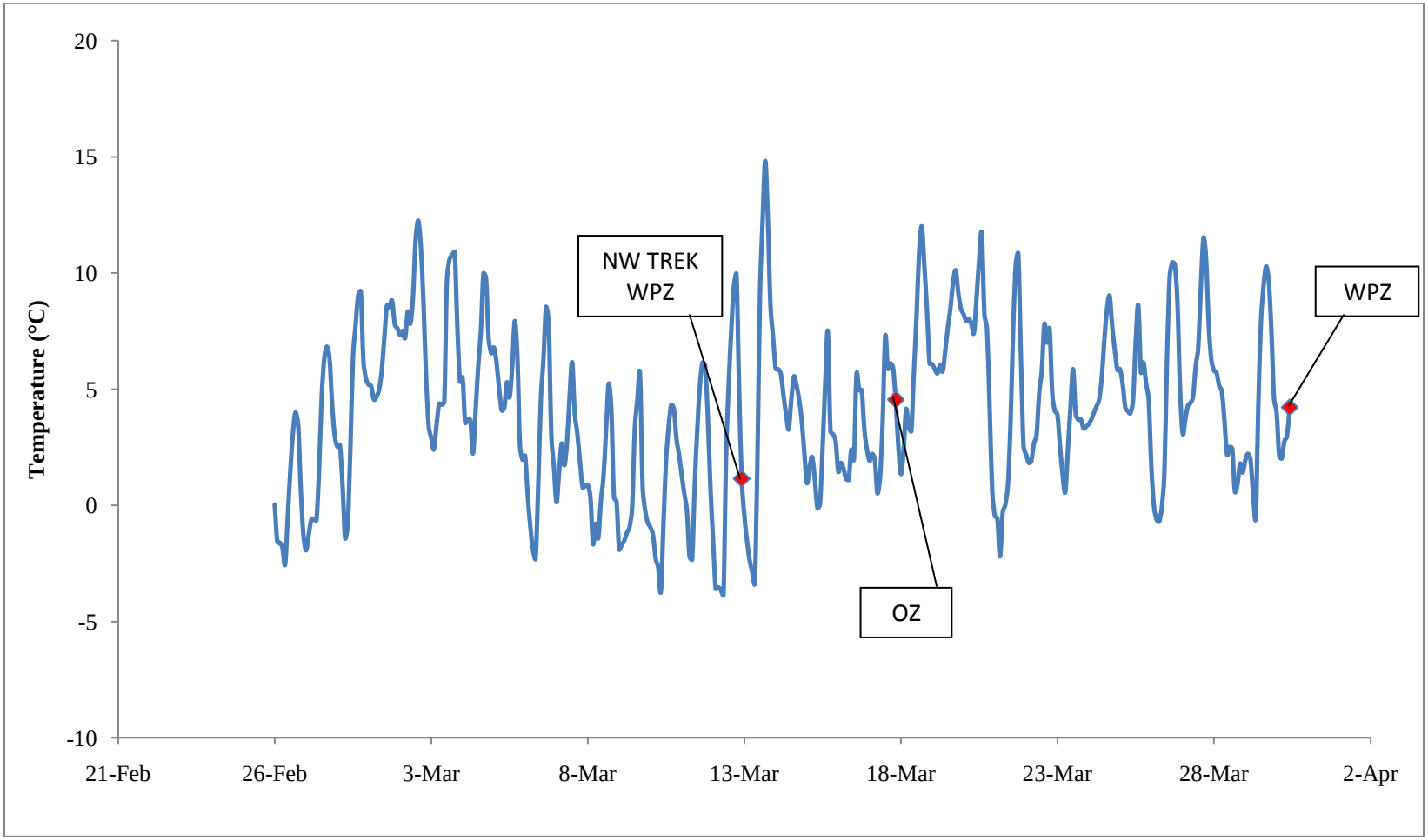

Figure 2.4. 2009 The Evergreen State College Weather Data: representing the Black River sites prior to OSF embryo collection. Ambient air temperature recorded every two hours for 14 days prior to earliest embryo collection. Embryo collection date for Northwest Trek (NW TREK), Woodland Park Zoo (WPZ), and Oregon Zoo (OZ) is indicated by red diamond.

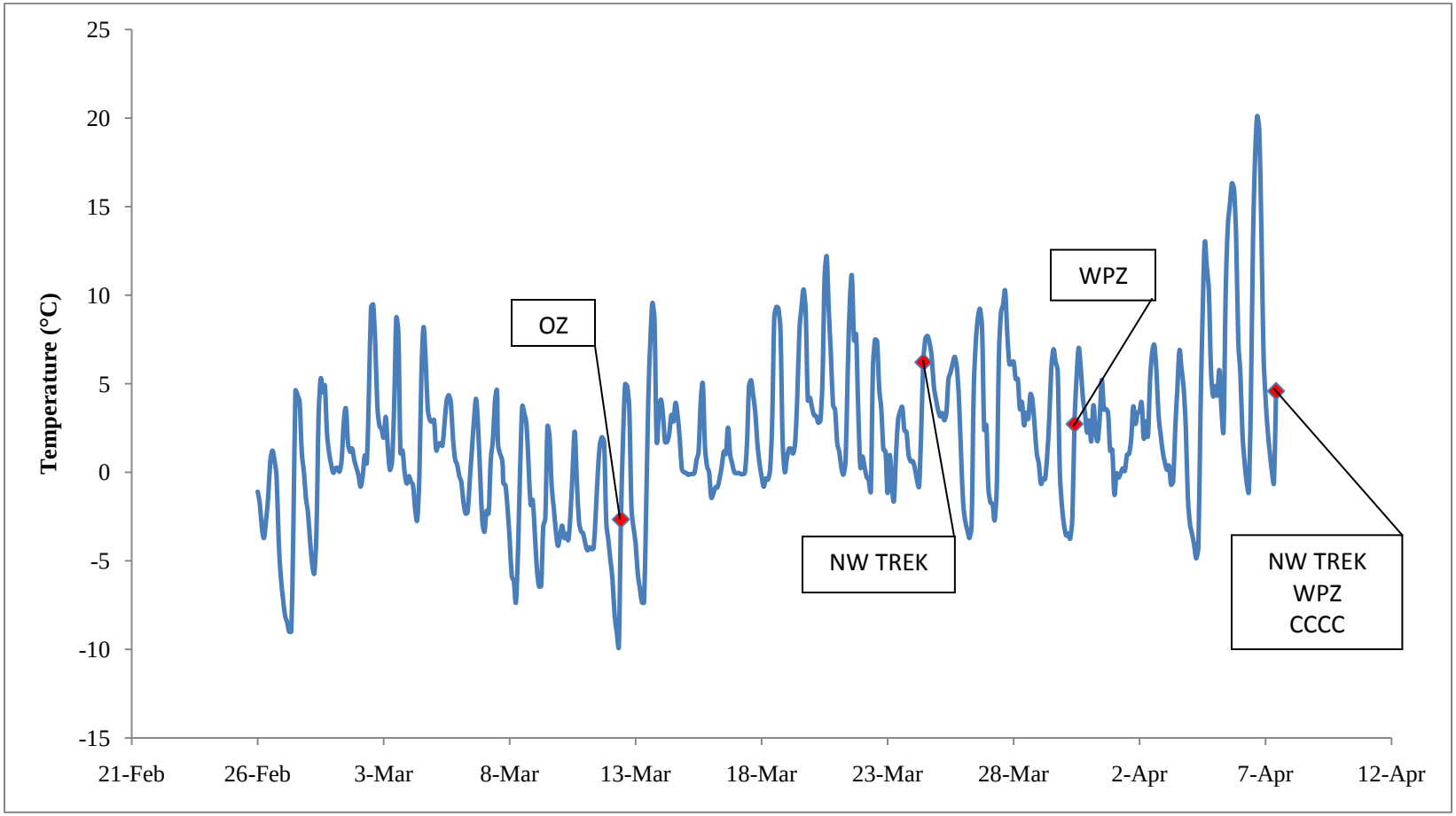

Figure 2.5. 2009 Champion Pacific Timberland Weather Data representing the Conboy Lake site prior to OSF embryo collection. Ambient air temperature recorded every two hours for 14 days prior to each collection. Embryo collection date for Northwest Trek (NW TREK), Woodland Park Zoo (WPZ), Oregon Zoo (OZ), and Cedar Creek Correction Center (CCCC) is indicated by red diamond.

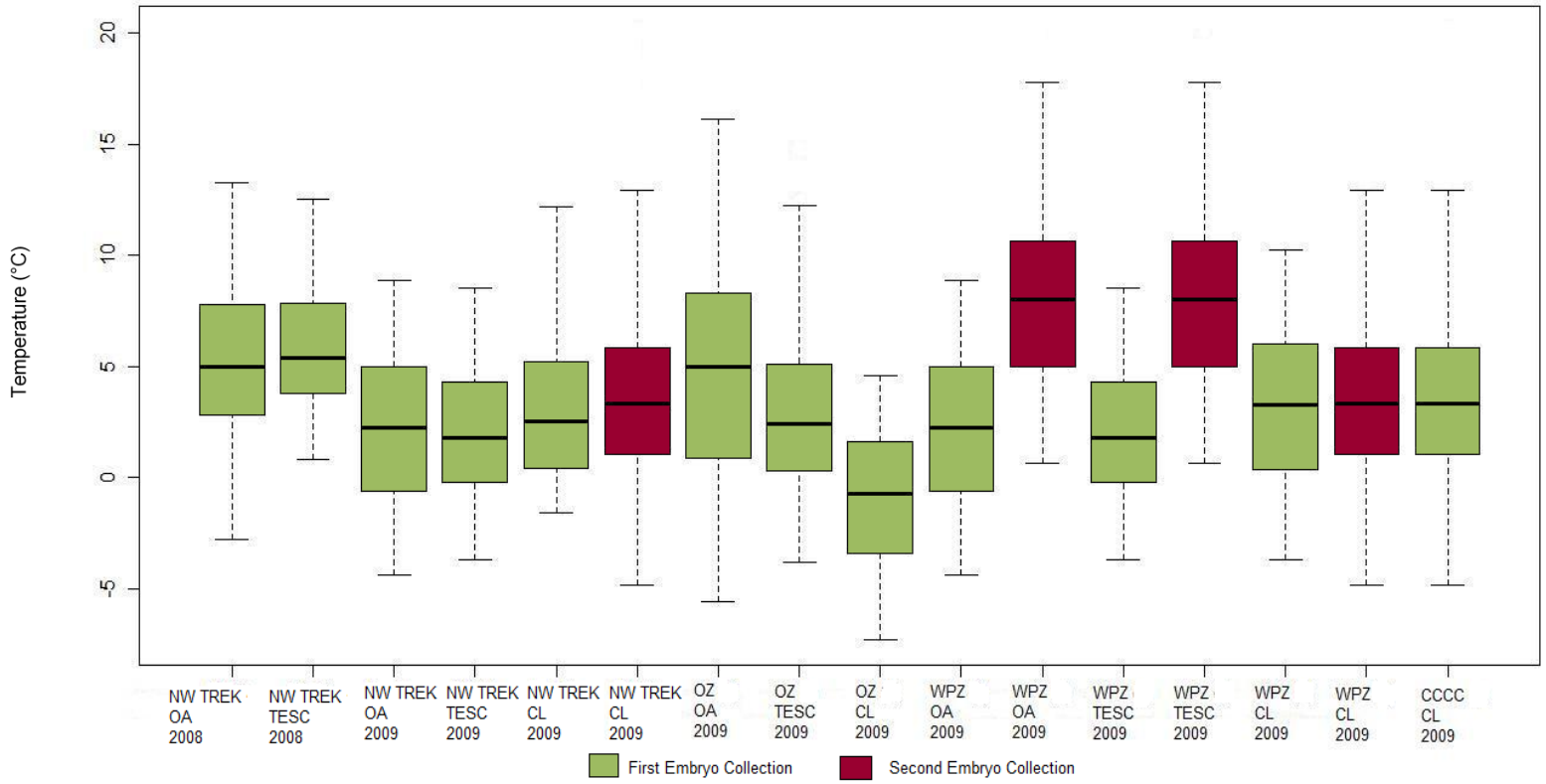

Figure 2.6. Box plots of ambient air temperatures 7 days prior to OSF embryo collection and delivery to rearing facilities(median = black bar, boxes are 25 and 75 percent quartile boundaries, whiskers are minimum and maximum temperatures): Northwest Trek (NW TREK), Oregon Zoo (OZ), Woodland Park Zoo (WPZ), and Cedar Creek Corrections Center (CCCC). Olympia Airport (OA) and The Evergreen State College (TESC) represent Black River temperatures, Conboy Lake (CL) represents temperatures of Conboy Lake.

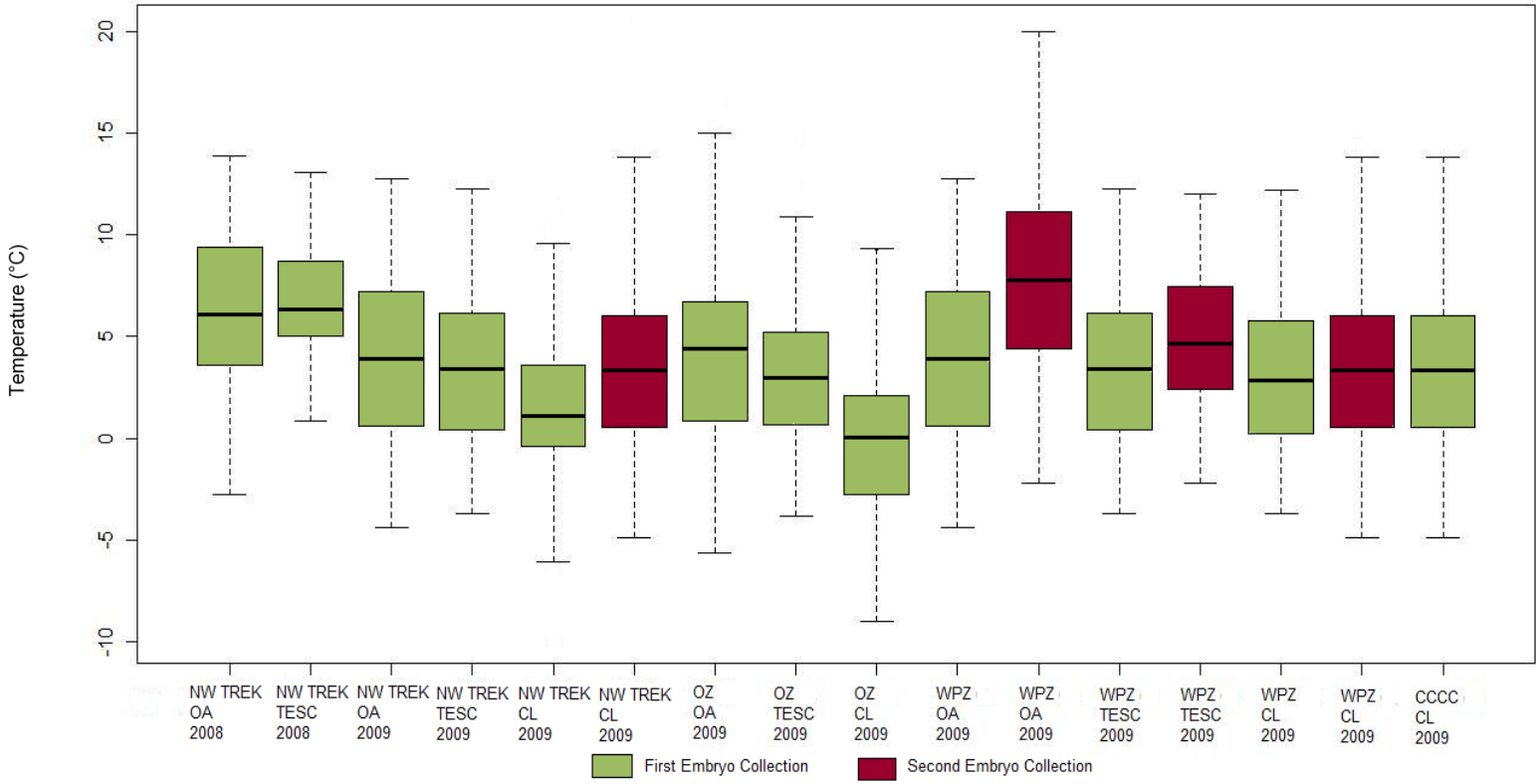

Figure 2.7. Box plots of ambient air temperatures 14 days prior to OSF embryo collection and delivery to rearing facilities(median = black bar, boxes are 25 and 75 percent quartile boundaries, whiskers are minimum and maximum temperatures): Northwest Trek (NW TREK), Oregon Zoo (OZ), Woodland Park Zoo (WPZ), and Cedar Creek Corrections Center (CCCC). Olympia Airport (OA) and The Evergreen State College (TESC) represent Black River temperatures, Conboy Lake (CL) represents temperatures of Conboy Lake.

3.0. EARLY REARING INTERVAL

The early rearing interval extends from the time embryos are received from the donor sites and are placed into the 5.7-L (6-qt) plastic containers in groups of no more than 20 individuals. In 2008, NW TREK kept the plastic tubs unheated on tables indoors. In 2009, NW TREK insulated the building in which the heated plastic tubs were kept and CCCC floated their tubs in larger 38.8-L (41 qt) containers of heated water also indoors. OZ and WPZ floated 5.7-L containers outdoors in heated 1136 L (300-gal) tanks. The embryos are raised in 5.7-L containers until they reach a total length of 20-25 mm at Gosner Stage 25 (Gosner 1960) before being moved into the large late rearing tanks.

3.1. Methods

3.1.1 Survivorship

Survivorship was calculated as a percentage of how many tadpoles were alive at the beginning of early rearing in each tub on the day the late rearing interval began. The early rearing interval was then divided into two parts and percent survivorship for each part was calculated to determine whether survivorship was higher in the first or second part of the interval. The proportion of individuals surviving from each institution were analyzed individually and for normality. The Shapiro-Wilks Test indicated that some of the data was normally distributed and some was not. A Student T-Test was applied to normally distributed data and a Mann-Whitney U Test was used for data that were not normally distributed. Survivorship data from of the Black River and Conboy Lake populations were compared using either a Mann-Whitney U Test or Student T-Test. I considered tests where the rejection criterion was <0.05 statistically significant. Northwest Trek was the only rearing facility with data from 2008 and 2009. Northwest

Trek received two different batches Conboy Lake embryos delivered in 2009. Woodland Park Zoo had two different batches Conboy Lake and Black River embryos delivered in 2009. Cedar Creek Corrections Center only received Conboy Lake embryos in 2009, therefore comparisons could only be made to other institutions that had reared Conboy Lake animals.

3.1.2. Water Temperature

I compared water temperature data to mortality patterns using linear regressions. The regressions of mortality and water temperature were done over intervals ranging from the temperature of the day the mortality occurred to 1 to 16 days prior to the day mortality occurred. Some of the institutions divided and moved tadpoles into new tubs to reduce tub densities part way through the early rearing stage; therefore I was forced to weigh mortality data accordingly. Northwest Trek was the only facility to record a maximum and minimum temperature taken every 24 hours. All other institutions took a daily spot temperature, usually during morning hours. Some facilities had data loggers that recorded a temperature every two hours these were all established part way through the early rearing interval and only for some of the containers, for that reason, I used daily spot temperatures for analysis. A Mann-Whitney U Test ($p < 0.05$) was used to determine significant differences in water temperature between the Black River and Conboy Lake tubs.

3.2. Northwest Trek Results

3.2.1 Survivorship

During 2008 and 2009, the mean survivorship of the Black River population ranged from 73% to 92%. The Conboy Lake population ranged from 68% to 100% (Figure 3.1).

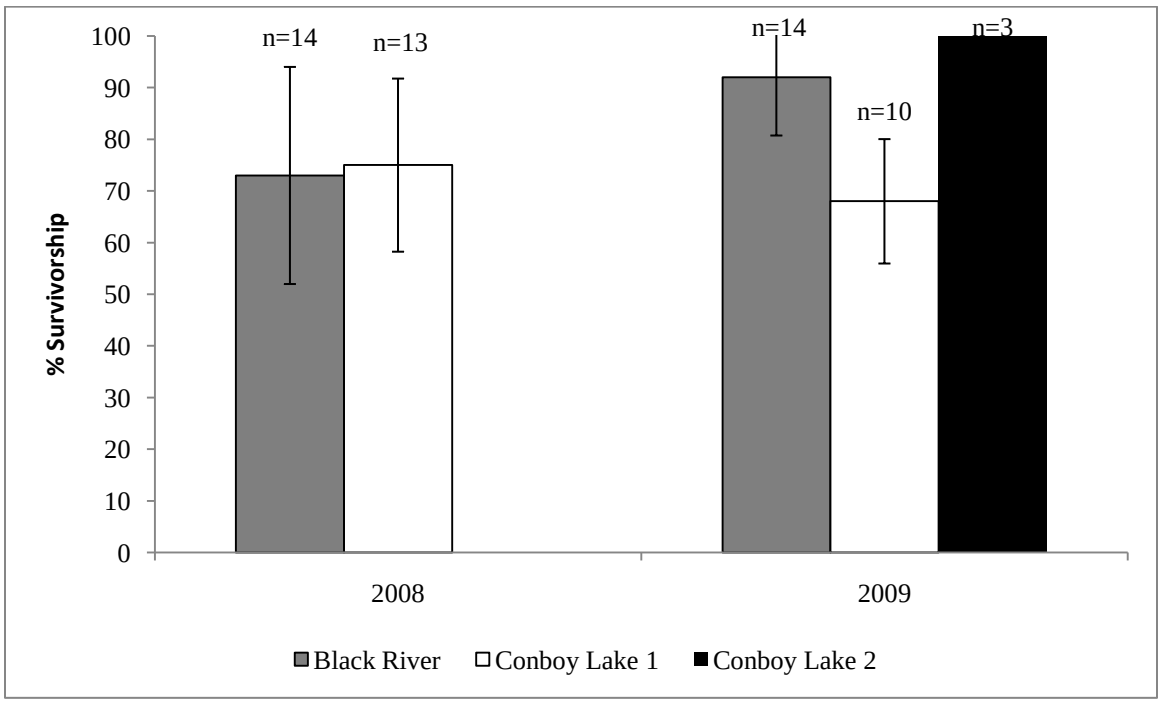

Figure 3.1 Northwest Trek mean survivorship (±standard deviation) in early rearing interval for Black River and Conboy Lake 1 (March 8- May 13, 2008 and March 12- May 5, 2009), Conboy Lake 2 (April 7-May 5, 2009), n = number of containers.

In 2008, there was a decrease in survivorship over the second half of the early rearing stage in both the Black River and Conboy Lake populations. In 2009, the Black River population had an increase and Conboy Lake had a decrease in survivorship over the second half of the early rearing stage (Table 3.1).

Table 3.1 Northwest Trek survivorship of the overall, first half, and second half of the early rearing stage.

Year and Populations	Total Days	Overall % Survivors	1st Half % Survivors	2nd Half % Survivors
2008 Black River	67	73	92	79
2008 Conboy Lake	67	75	92	81
2009 Black River	55	92	90	96
2009 Conboy Lake 1	43	68	87	75
2009 Conboy Lake 2	28	100	100	100

A comparison of survivorship was conducted between Black River and Conboy Lake populations in each year of the overall survivorship. I found no significant difference in survivorship between Black River and Conboy Lake populations in 2008 (Mann-Whitney U Test, 2008: p=0.52). I also found a significant difference in Black River and Conboy Lake survivorship in 2009 (Mann-Whitney U Test, 2009: p=0.00). A pooled comparison of survivorship in 2008 and 2009 conducted between Black River and Conboy Lake was not significant (Student T-Test, 2008 and 2009: p=0.14).

3.2.2 Water Temperature

Temperatures in 2008 were significantly lower than in 2009. In 2009, the Conboy Lake OSF temperatures were significantly higher than Black River OSF (Table 3.2 and 3.3). There was no relationship between water temperature and percent mortality. In 2009, Black River and Conboy Lake 1 population's maximum temperature range exceeded known maximum embryonic thermal temperature of 28°C.

Table 3.2. Northwest Trek 2008 range and mean [±standard deviation (SD)] water temperatures (°C) of Black River and Conboy Lake populations.

	Maximum Temperature		Minimum Temperature		Average Temperature	
Population	Range	Mean ± SD	Range	Mean ± SD	Range	Mean ± SD
Black River	6.7 - 25.6	14.7 ± 5.3	1.3 - 16.5	6.8 ± 3.0	5.4 - 18.9	10.8 ± 3.8
Conboy Lake	6.9 - 26.0	14.6 ± 5.1	1.3 - 18.6	6.8 ± 3.2	5.5 - 19.3	10.7 ± 3.9

Table 3.3. Northwest Trek 2009 range and mean [±standard deviation (SD)] water temperatures (°C) of Black River and Conboy Lake populations.

	Maximum Temperature		Minimum Temperature		Average Temperature	
Population	**Range**	**Mean ± SD**	**Range**	**Mean±SD**	**Range**	**Mean±SD**
Black River	11.9 - 29.6	20.0 ± 3.9	9.0 - 19.5	15.7 ± 2.7	11.4 - 17.9	17.9 ± 2.9
Conboy Lake 1	19.7 - 29.5	22.0 ± 2.9	10.0 - 24.3	17.0 ± 2.5	16.5 - 26.6	19.5 ± 2.3
Conboy Lake 2	20.0 - 25.0	20.9 ± 1.1	11.8 - 19.8	16.8 ± 1.8	16.9 - 21.4	18.8 ± 1.1

3.3. Oregon Zoo Results

3.3.1 Survivorship

The mean survivorship of the Black River population was 97% of 15 tubs and the Conboy Lake population was 96% of 10 tubs (March 21- May 3, 2009). The Black River and Conboy Lake populations both had an increase in survivorship over the second part of the early rearing stage over the first part (Table 3.4).

Table 3.4 Oregon Zoo, percent and days survivorship of the overall, first and second half of the early rearing stage.

Population	**Total Days**	**Overall % Survivors**	**1st Part % Survivors**	**2nd Part % Survivors**
Black River	67	97	96	100
Conboy Lake	43	96	93	98

A comparison of survivorship was conducted between Black River and Conboy Lake populations. There was no significant difference in survivorship between Black River and Conboy Lake populations (Mann-Whitney U Test: $p=0.06$).

3.3.2 Water Temperature

The mean water temperature of the Black River population ranged from 6.4 to 24.4°C and a mean of 20.1°C. The Conboy Lake population ranged from 6.4 to 24.4°C and a mean of 19.0°C. There was no relationship between water temperature and percent mortality.

3.4 Woodland Park Zoo Results

3.4.1 Survivorship

The mean survivorship of the Black River population ranged from 80% to 90% and the Conboy Lake population ranged from 40% to 73% (Fig 3.2)

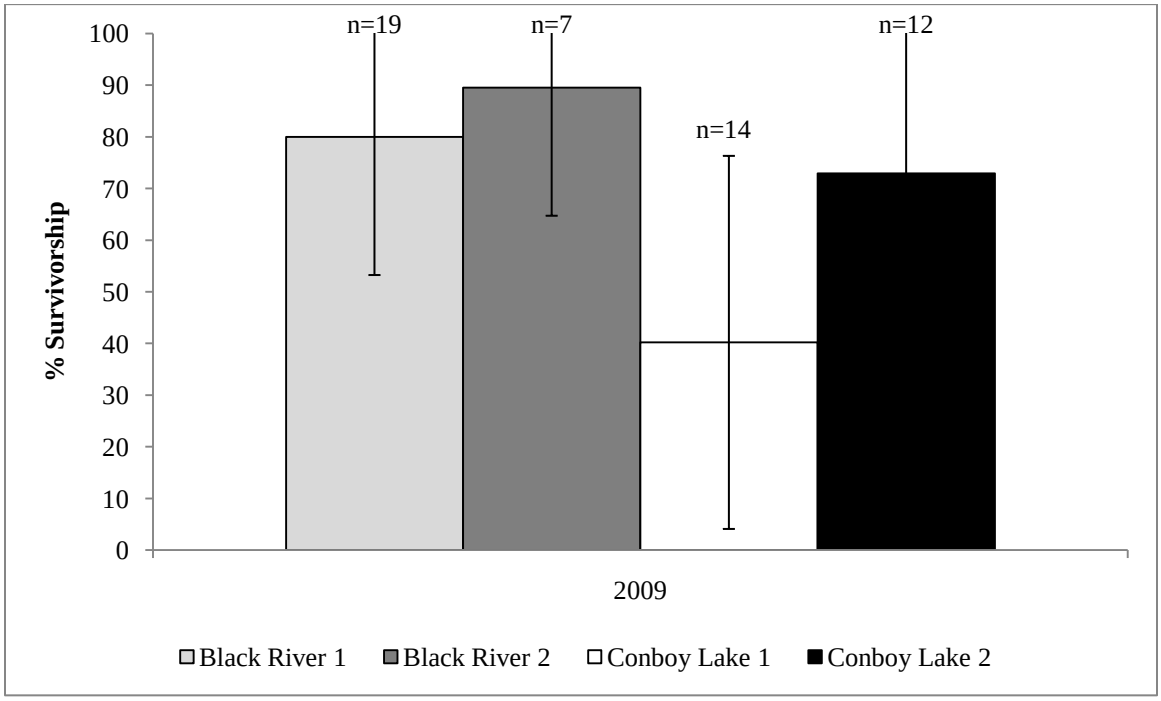

Figure 3.2 Woodland Park Zoo mean survivorship (±standard deviation) of early rearing interval survivorship of OSF from the Black River 1 (March 13- May 11, 2009), Black River 2 and Conboy Lake 1(March 31- May 11, 2009), and Conboy Lake 2 (April 7- May 11, 2009), n= number of containers.

The Black River and Conboy Lake populations both had an increase in survivorship in the second half of the early rearing stage (Table 3.5).

Table 3.5 Woodland Park Zoo, percent and days survivorship the overall, first half, and second half of the early rearing stage.

Population	Total Days	Total % Survivors	1st Part % Survivors	2nd Part % Survivors
Black River 1	60	80	80	100
Black River 2	42	90	90	100
Conboy Lake 1	42	40	41	81
Conboy Lake 2	35	73	75	93

A comparison of survivorship was conducted between the first embryo collection from Black River (1) and the second Black River (2) collection, and between first embryo collection from Conboy Lake (1) and the second Conboy Lake (2) collection. There was a significant difference in survivorship between Black River 1 and Black River 2 populations (Mann-Whitney U Test, $p<0.05$). There was no significant difference in survivorship between Conboy Lake 1 and Conboy Lake 2 populations (Mann-Whitney U Test, $p=0.26$). A pooled comparison Black River has a significantly higher survivorship than Conboy Lake (Mann-Whitney U Test, $p<0.05$).

3.4.2 Water Temperature

The temperatures from the Conboy Lake populations were significantly higher than those of the Black River populations. Temperatures from the Black River 2 population were significantly higher than Black River 1 populations (Table 3.6). There was no relationship between water temperature and percent mortality.

Table 3.6 Range and Mean [±standard deviation (SD)] water temperatures (°C) of 2009 Black River and Conboy Lake populations at Woodland Park Zoo.

Population	Range	Mean ± SD
Black River 1	9.7 - 19.1	15.3 ± 2.3
Black River 2	9.7 - 19.3	16.2 ± 1.6
Conboy Lake 1	13.2 - 21.7	17.9 ± 2.0
Conboy Lake 2	14.1 - 21.7	18.2 ± 1.8

3.5 Cedar Creek Corrections Center

3.5.1 Survivorship and Water Temperature

The mean survivorship of the Conboy Lake population in 2009 was 96% of 4 tubs (April 8 - 30, 2009). The second half of the rearing stage increased to 100% from 96% in the first half. The mean water temperature of the Conboy Lake population ranged from

17.9 to 26.7°C and a mean of 23.7°C. There was no relationship between water temperature and percent mortality.

4.0. LATER REARING INTERVAL

The later rearing stage occurs after tadpoles reach Gosner Stage 25 (Appendix) and are moved from the early rearing containers into 1136 L (300-gal) tanks. In 2008, NW TREK divided the frogs evenly between two tanks of Conboy Lake frogs and two tanks of Black River Frogs. Cedar Creek Corrections Center had one tank of Conboy Lake frogs in 2009. Northwest Trek, OZ, and WPZ did density tests in 2009. A test tank was held at 100 individual frogs. When mortalities occurred frogs were replaced by an individual from a surplus tank.

4.1. Methods

4.1.1. Survivorship

I was limited in the statistical analyses I could perform in the late rearing interval due to low very low mortality at many of the rearing facilities. Survivorship was calculated as the percentage of individuals from Conboy Lake and Black River that survived to the release date from the day they were first placed in the tanks.

4.1.2. Water Temperature

The water temperature data was compared with mortality data using second-order polynomial regressions. The regressions of mortality and water temperature were done in intervals using the temperature of the day the mortality occurred and the temperatures 1 to 16 days prior to the day mortality occurred. Only test tank data for NW TREK, OZ, and WPZ, which reared at uniform densities in 2009 were used in the regressions, because mortalities at NW TREK in 2008 and CCCC in 2009 were too few from which to draw a relationship. Rearing temperatures were also compared to the embryonic thermal

maximum of 28°C for OSF that (Licht 1971) reported based on frogs from southwestern British Columbia.

4.2. Northwest Trek Results

4.2.1. Survivorship and Water Temperature

In 2008, survivorship of the Black River animals was 98% of 289 OSF and the Conboy Lake was 100% of 272 OSF (May 15 - September 28). In 2009, the survivorship of Black River and Conboy Lake populations was 0% (May 6 – June 22). Second order polynomial regressions in 2009 between mortality and temperature in the test tank did show some increase in strength for the 1-16 day intervals (Appendix B). Maximum water temperatures over the 11-day interval prior to recorded mortalities had the strongest relationship to the degree of mortality for both Black River and Conboy Lake populations (Fig 4.1, 4.2). In 2008, temperature ranges during the late rearing interval exceeded the known embryonic thermal tolerance of 28°C (Table 4.1). In 2009, the maximum temperature range of one tank of Conboy Lake OSF exceeded the known embryonic thermal tolerance for one 24 hr period (Table 4.2).

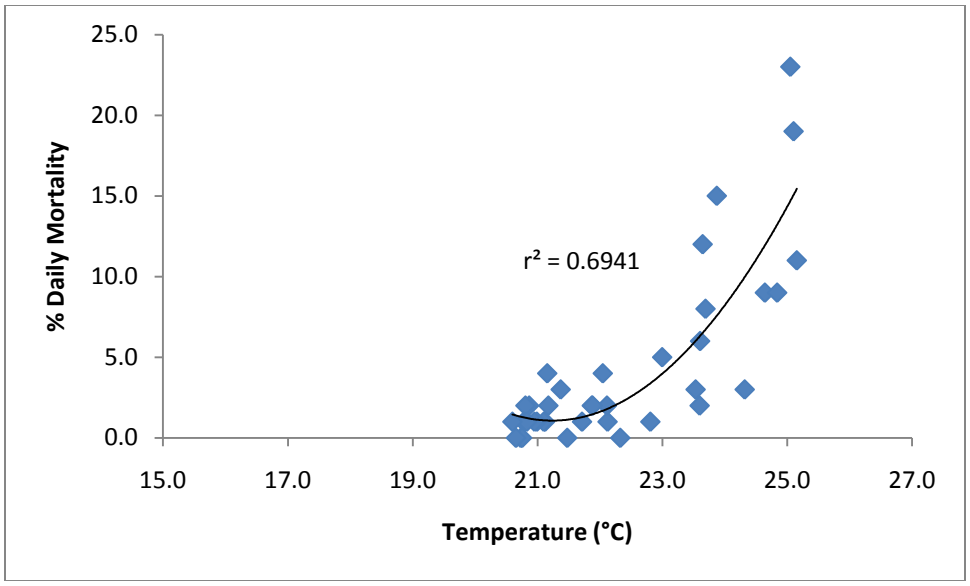

Figure 4.1 Northwest Trek, Black River Population late rearing interval second-order polynomial regression of daily mortality and maximum water temperature over the 11-day interval preceding each record.

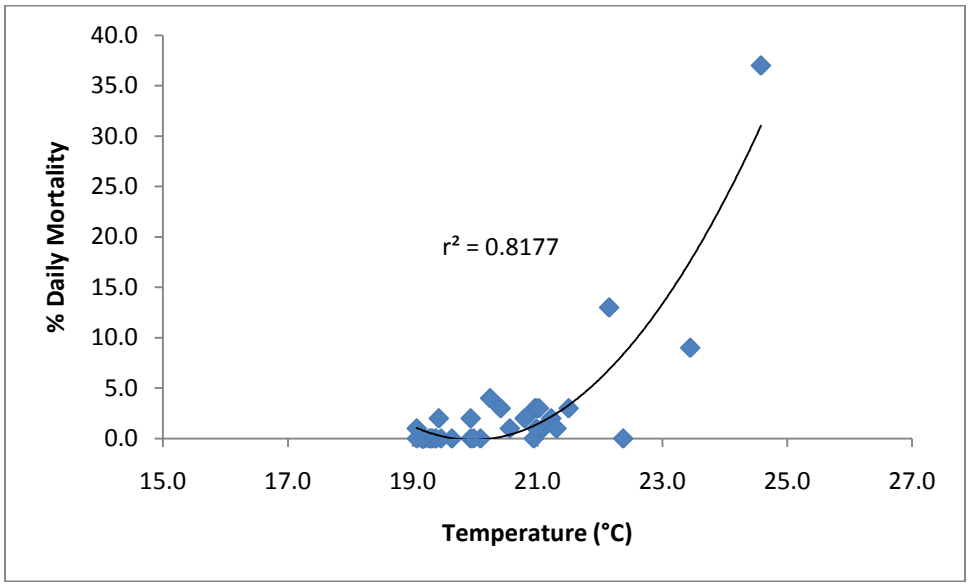

Figure 4.2 Northwest Trek, Conboy Lake Population late rearing interval second-order polynomial regression of daily mortality and maximum water temperature over the 11-day interval preceding each record.

Table 4.1 Northwest Trek 2008 late rearing interval range and mean [±standard deviation (SD)] water temperatures (°C), Black River and Conboy Lake populations. Using daily spot temperatures.

Population	Tank	Range	Mean ± SD
Black River	1	18.1 - 29.1	24.0 ± 2.3
Black River	2	18.0 - 29.8	24.5 ± 2.6
Conboy Lake	3	18.4 - 30.1	24.8 ± 2.5
Conboy Lake	4	10.5 - 31.1	25.6 ± 3.2

Table 4.2 Northwest Trek 2009 late rearing interval range and mean [±standard deviation (SD)] water temperatures (°C), Black River and Conboy Lake populations. Using minimum and maximum temperatures recorded every 24 hours.

		Maximum Temperature		Minimum Temperature		Average Temperature	
Population	Tank	Range	Mean ± SD	Range	Mean ± SD	Range	Mean ± SD
Black River	Surplus	22.5 - 26.8	24.4 ± 1.1	11.5 - 24.0	14.6 ± 2.8	17.0 - 25.0	19.5 ± 1.8
Black River	Test	19.6 - 27.6	22.5 ± 2.5	11.0 - 16.0	16.0 ± 2.3	17.4 - 23.1	19.3 ± 1.2
Conboy Lake	Surplus	22.5 - 26.8	24.5 ± 1.2	11.2 - 24.9	14.4 ± 3.5	17.2 - 25.0	19.4 ± 2.1
Conboy Lake	Test	20.0 - 28.1	22.8 ± 2.7	10.7 - 19.0	15.9 ± 2.2	16.9 - 22.8	19.4 ± 1.3

4.3. Oregon Zoo Results

4.3.1 Survivorship and Water Temperature

Survivorship of Black River population was 0% and Conboy Lake was 20% (May 4 – November 17, 2009). I found no relationship between later temperature and percent mortality. Temperature exceeded the known embryonic thermal tolerance of 28°C for up to 8 hours in the Black River test tank from the data loggers and three consecutive daily spot temperature readings in the Conboy Lake and Black River tanks (Table 4.3).

Table 4.3 Oregon Zoo later rearing interval range and mean [±standard deviation (SD)] water temperatures (°C) Black River and Conboy Lake populations.*Data has breaks and runs May 5-June 6 and July 31 – November 10, 2009. **Surplus 2 had complete mortality approximately 2 hours after beginning the later rearing stage

Population	Tank	Temperature Recorder	Range	Mean ± SD
Black River	Test	Daily Spot	16.7 - 30.6	25.1 ± 2.5
Black River	Test	Data Logger*	11.2 - 31.7	23.0 ± 2.4
Black River	Surplus 1	Daily Spot	15.6 - 30.6	23.1 ± 3.4
Black River	Surplus 2**	Daily Spot	-	-
Conboy	Test	Daily Spot	15.6 - 30.6	23.8 ± 2.6
Conboy	Surplus	Daily Spot	16.7 - 30.6	23.9 ± 2.6

4.4. Woodland Park Zoo Results

4.4.1. Survivorship and Water Temperature

Survivorship of Black River OSF was 92% and Conboy Lake OSF was 96%. I found no relationship between water temperature and percent mortality. Three tanks of Black River and one tank of Conboy Lake OSF temperature range exceeded the known embryonic thermal tolerance of 28°C (Table 4.3).

Table 4.4 Woodland Park Zoo later rearing stage range and mean [±standard deviation (SD)] water temperatures (°C) Black River and Conboy Lake populations

Population	Tank	Temperature Recorder	Range	Mean ± SD
Black River	Test 2	Data Logger	8.8 - 28.4	20.4 ± 2.3
Black River	Test 8	Data Logger	8.8 - 29.6	20.0 ± 2.2
Black River	Surplus 3	Data Logger	8.5 - 26.9	20.1 ± 2.2
Black River	Surplus 4	Data Logger	13.3 - 32.4	20.2 ± 2.1
Conboy Lake	Test 6	Data Logger	9.1 - 27.9	20.6 ± 2.4
Conboy Lake	Surplus 5	Data Logger	8.5 - 29.3	20.7 ± 2.7
Conboy Lake	Surplus 7	Data Logger	11.9 - 37.4	20.7 ± 3.1

4.5. Cedar Creek Correction Center

4.5.1 Survivorship and Water Temperature

CCCC had 87% survivorship of Conboy Lake animals during the late rearing interval (April 30 – November 17, 2009).

Table 4.5 Cedar Creek Corrections Center later rearing stage range and Mean [±standard deviation (SD)] water temperatures (°C) of 2009 Conboy Lake populations from Cedar Creek Correction Center. *Data has breaks and runs April 30- August 9, 2009

Population	Temperature Recorder	Range	Mean ± SD
Conboy Lake	Data Logger*	13.5 - 25.6	21.4 ± 2.2
Conboy Lake	Daily Spot	7.4 - 25.4	19.4 ± 3.8

5.0. DISCUSSION

5.1. Environmental Temperature

The results and literature suggests that environmental temperature prior to embryo collection may have influenced the survivorship of embryos and larvae in the early rearing interval, though some population specificity likely exists, as the work of Bowerman et al. (2010) has implied. Environmental temperatures prior to collection is a concern to survivorship because females often oviposit eggs masses in shallow water (Cushman and Pearl 2007). This oviposition pattern makes it easy for the top layer of eggs to be damaged by freezing temperatures (McAllister and Leonard 1997, Pearl and Hayes 2004). However, some eggs exposure to cold temperatures that may not have the signature of being frozen (lightening embryos and sheared jelly) may be damaged enough to impair development or result in latent mortality. Even experienced egg collectors may gather such eggs when overt signs of injury are not apparent. Collection of eggs should occur in areas of the mass furthest from the water surface in order to minimize collecting injured eggs.

Licht (1971) studied OSF embryonic thermal requirements in the Lower Fraser River Valley of British Columbia, Canada and found thermal tolerance ranging from 6 to 28°C. A study of the temperature tolerance of OSF populations near Sunriver in central Oregon found the local OSF population able to withstand at least 10 days below 6°C in the field and lab (Bowerman and Pearl 2010). The Lower Fraser River Valley populations low elevation (ca. 50 m) and have a strong maritime influence (Haycock 2000), which modulates the local climate and likely exposes them to less harsh temperature at thaw. The Black River populations, also low elevation (60 m) with a maritime influence, are

more similar to Licht's (1971) along the lower Fraser River than to that at Conboy Lake. In contrast, temperature variation at the higher elevation (540 m) Conboy Lake east of the Cascade Mountains is more similar to the harsher winter conditions at Sunriver (1270 m) central Oregon reported by Bowerman et al. (2010). Hence, if temperature tolerances difference between animals from Black River and Conboy Lake, I would expect Conboy Lake animals to be more cold tolerant. However, experimental data will be needed to verify cold tolerances at both locations.

The environmental temperatures 7 and 14 day prior to embryo collection may have influenced survivorship in the early rearing interval. Embryonic temperature tolerance increases as development proceeds (Licht 1971), suggesting that temperatures 14 days prior to collection have a greater impact on early survivorship than those taken 7 days prior to collection.

5.2. Early Rearing Stage

A significant difference in survivorship between Black River and Conboy Lake populations in the early rearing interval at NW TREK and WPZ. The basis of this difference is inconclusive. No relationships existed between water temperatures and percent mortality in the early rearing interval at any facility. This implies that an unknown factor is influencing survivorship between populations differently. The temperatures from NW TREK (2009) did exceed the maximum tolerance of 28°C described in Licht (1971), and if differences exists in maximum temperature between the two populations, this could explain at least some of the difference in survivorship. However, this cannot be the unique explanation because exceedance of the embryonic maximum temperature tolerance was not uniformly concordant with the lowest

survivorship. Low environmental temperatures described earlier are possible factors as well, but this cannot be a unique explanation for the same reason. Moreover, the data imply that the early rearing interval was less impacted. Information on temperature tolerance of individual populations would clearly help sort some of this conundrum, but it is likely that non-temperature reasons for these patterns will have to be considered as well.

5.3. Later Rearing Stage

Maximum water temperatures did not exceed 28°C at NW TREK (2009) in the later rearing interval, but did show a relationship with percent mortality. The results imply that it took 11 days for temperature to impact survivorship. With this long of an apparent impact period, survivorship in late rearing interval could conceivably have been impacted by the elevated water temperatures from the early rearing interval. Additional, exposure to low temperatures may shift the tolerance limits through some sort of acclimation or sensitization, patterns that are entirely unknown. Black River and Conboy Lake populations crashed at NW TREK (2009) indicating that both populations responded poorly to maximum water temperatures. This concordant pattern will the probable lower environmental temperature following oviposition at both sites in 2009 implies that acclimation or sensitization patterns should be investigated.

6.0. CONCLUSION

This study suggests that environmental temperatures prior to embryo collection and water temperatures in the late rearing interval may influence survivorship during captive rearing. However, understanding of temperature tolerance of the late rearing stages and temperature acclimation and sensitization patterns are needed to definitively sort out temperature effects. The population-specific temperature tolerances also need investigation, and in particular, whether Conboy Lake animals are more cold tolerant than Black River animals, as the data from Bowerman et al. (2010) would seem to imply. A last limitation of the temperature data was the lack of systematic (data logger-base) temperature information during the entire rearing interval, especially lacking across all the shoebox-sized containers. Systematic temperature monitoring for all rearing stages in all rearing units would generate high-resolution temperature profiles to better understand the impact of temperature on survivorship.

A better understanding of the possible impacts of temperature will requires investigation of other factors, like water quality, that may be confounded with temperature effects. Water quality information collected during rearing was too sparse to enable analysis and disentangle any effects from those potentially attributable to temperature. To remedy this situation, I would recommend systematic recording of water quality parameter ammonia, nitrate, nitrite, pH, and dissolved oxygen levels at all institutions.

Further research on the thermal and water quality tolerances of OSF from Black River and Conboy Lake populations throughout the life cycle would help guide captive rearing institutions in setting target water temperatures and water quality parameter

levels. Understanding of tolerance levels in a declining species, such as the OSF, can help future researchers find ways to avert declines for amphibians locally and may contribute to limiting declines globally.

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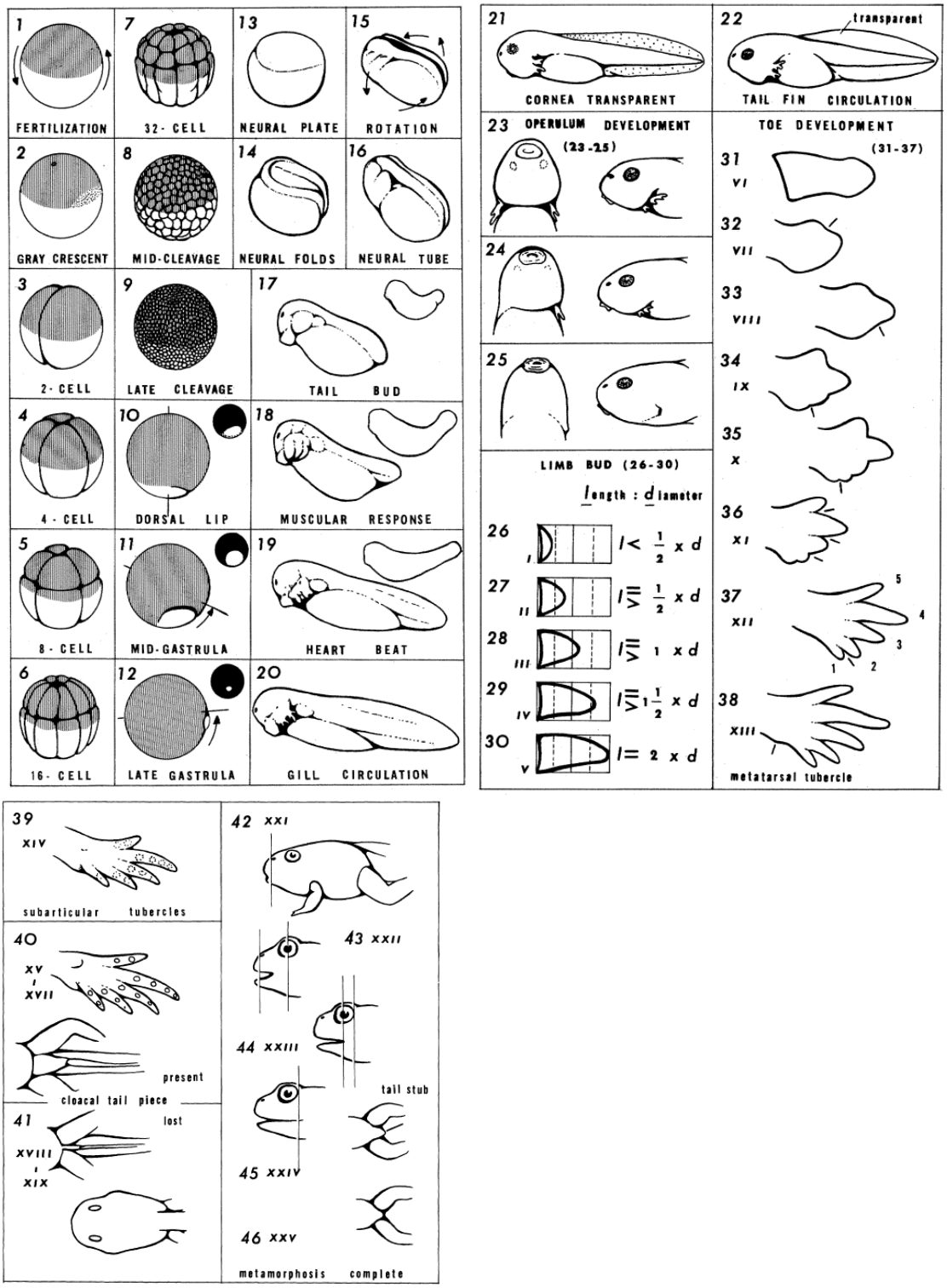
APPENDIX

Table A. Gosner Stages



(Gosner 1960)

Appendix B: Table 1 2009 Northwest Trek later rearing interval, Linear 2nd Order Polynomial Regression: r^2 values

Maximum Temperature

	Day of	**1-day**	**2-day**	**3-day**	**4-day**	**5-day**	**6-day**	**7-day**	**8-day**	**9-day**	**10-day**	**11-day**	**12-day**	**13-day**	**14-day**	**15-day**	**16-day**
Conboy	0.18	0.29	0.38	0.34	0.26	0.18	0.15	0.15	0.15	0.17	0.17	0.82	0.11	0.09	0.27	0.28	0.30
Black River	0.21	0.18	0.17	0.20	0.28	0.34	0.35	0.38	0.39	0.42	0.46	0.69	0.54	0.56	0.54	0.53	0.53

Minimum Temperature

	Day of	**1-day**	**2-day**	**3-day**	**4-day**	**5-day**	**6-day**	**7-day**	**8-day**	**9-day**	**10-day**	**11-day**	**12-day**	**13-day**	**14-day**	**15-day**	**16-day**
Conboy	0.11	0.06	0.04	0.09	0.13	0.14	0.15	0.17	0.16	0.15	0.14	0.16	0.25	0.22	0.24	0.25	0.25
Black River	0.16	0.23	0.30	0.42	0.43	0.41	0.38	0.40	0.38	0.36	0.34	0.33	0.33	0.40	0.50	0.60	0.66

Average Temperature

	Day of	**1-day**	**2-day**	**3-day**	**4-day**	**5-day**	**6-day**	**7-day**	**8-day**	**9-day**	**10-day**	**11-day**	**12-day**	**13-day**	**14-day**	**15-day**	**16-day**
Conboy	0.10	0.25	0.46	0.43	0.30	0.13	0.04	0.02	0.04	0.05	0.05	0.04	0.01	0.01	0.10	0.08	0.08
Black River	0.22	0.15	0.14	0.24	0.32	0.36	0.36	0.43	0.42	0.44	0.50	0.53	0.42	0.28	0.21	0.17	0.14

Appendix C: Table 1. 2008 Olympia Airport Environmental Temperature

Date	Temp (°C)
2/22/08 0:54	4.4
2/22/08 2:54	3.9
2/22/08 4:54	0.6
2/22/08 6:54	-1.1
2/22/08 8:54	0.0
2/22/08 10:54	5.6
2/22/08 12:54	13.9
2/22/08 14:54	12.2
2/22/08 16:54	9.4
2/22/08 18:54	3.9
2/22/08 20:54	3.9
2/22/08 22:54	5.6
2/23/08 0:54	5.6
2/23/08 2:54	5.0
2/23/08 4:54	3.9
2/23/08 6:54	0.6
2/23/08 8:54	5.0
2/23/08 10:54	8.9
2/23/08 12:54	11.1
2/23/08 14:54	11.7
2/23/08 16:54	11.1
2/23/08 18:54	8.3
2/23/08 20:54	6.7
2/23/08 22:54	5.0
2/24/08 0:54	6.7
2/24/08 2:54	7.2
2/24/08 4:54	5.6
2/24/08 6:54	4.4
2/24/08 8:54	7.2
2/24/08 10:54	10.0
2/24/08 12:54	11.7
2/24/08 14:54	12.8
2/24/08 16:54	13.3
2/24/08 18:54	9.4
2/24/08 20:54	5.0

Date	Temp (°C)
2/24/08 22:54	5.0
2/25/08 0:54	5.0
2/25/08 2:54	5.6
2/25/08 4:54	6.7
2/25/08 6:54	6.1
2/25/08 8:54	7.8
2/25/08 10:54	10.0
2/25/08 12:54	11.1
2/25/08 14:54	11.1
2/25/08 16:54	10.0
2/25/08 18:54	8.9
2/25/08 20:54	5.0
2/25/08 22:54	2.8
2/26/08 0:54	1.7
2/26/08 2:54	1.1
2/26/08 4:54	0.6
2/26/08 6:54	0.0
2/26/08 8:54	2.2
2/26/08 10:54	4.4
2/26/08 12:54	9.4
2/26/08 14:54	12.8
2/26/08 16:54	12.2
2/26/08 18:54	7.8
2/26/08 20:54	5.0
2/26/08 22:54	2.2
2/27/08 0:54	2.2
2/27/08 2:54	2.2
2/27/08 4:54	5.0
2/27/08 6:54	6.7
2/27/08 8:54	7.8
2/27/08 10:54	10.0
2/27/08 12:54	13.9
2/27/08 14:54	12.8
2/27/08 16:54	11.7
2/27/08 18:54	9.4

Date	Temp (°C)
2/27/08 20:54	9.4
2/27/08 22:54	8.9
2/28/08 0:54	8.3
2/28/08 2:54	8.3
2/28/08 4:54	8.3
2/28/08 6:54	7.8
2/28/08 8:54	8.9
2/28/08 10:54	10.6
2/28/08 12:54	12.2
2/28/08 14:54	13.3
2/28/08 16:54	12.8
2/28/08 18:54	7.2
2/28/08 20:54	6.1
2/28/08 22:54	5.6
2/29/08 0:54	3.3
2/29/08 2:54	3.9
2/29/08 4:54	5.0
2/29/08 6:54	5.0
2/29/08 8:54	7.8
2/29/08 10:54	12.2
2/29/08 12:54	13.9
2/29/08 14:54	10.0
2/29/08 16:54	9.4
2/29/08 18:54	6.7
2/29/08 20:54	6.7
2/29/08 22:54	2.8
3/1/08 0:54	3.3
3/1/08 2:54	3.9
3/1/08 4:54	3.3
3/1/08 6:54	2.8
3/1/08 8:54	5.0
3/1/08 10:54	6.1
3/1/08 12:54	8.9
3/1/08 14:54	8.9
3/1/08 16:54	7.8

Table 1 continued.

Date	Temp (°C)
3/1/08 18:54	4.4
3/1/08 20:54	5.0
3/1/08 22:54	3.3
3/2/08 0:54	0.6
3/2/08 2:54	-2.2
3/2/08 4:54	-1.1
3/2/08 6:54	-2.2
3/2/08 8:54	2.8
3/2/08 10:54	7.2
3/2/08 12:54	9.4
3/2/08 14:54	10.6
3/2/08 16:54	10.0
3/2/08 18:54	6.7
3/2/08 20:54	5.6
3/2/08 22:54	2.8
3/3/08 0:54	3.9
3/3/08 2:54	3.9
3/3/08 4:54	3.3
3/3/08 6:54	4.4
3/3/08 8:54	4.4
3/3/08 10:54	4.4
3/3/08 12:54	6.1
3/3/08 14:54	8.9
3/3/08 16:54	6.7
3/3/08 18:54	6.1
3/3/08 20:54	5.6
3/3/08 22:54	5.6
3/4/08 0:54	5.0
3/4/08 2:54	3.9
3/4/08 4:54	3.9
3/4/08 6:54	2.8
3/4/08 8:54	6.1
3/4/08 10:54	7.8
3/4/08 12:54	9.4
3/4/08 14:54	9.4

Date	Temp (°C)
3/4/08 16:54	10.0
3/4/08 18:54	6.1
3/4/08 20:54	1.1
3/4/08 22:54	0.0
3/5/08 0:54	-1.7
3/5/08 2:54	-2.8
3/5/08 4:54	-0.6
3/5/08 6:54	0.0
3/5/08 8:54	2.8
3/5/08 10:54	6.1
3/5/08 12:54	9.4
3/5/08 14:54	11.7
3/5/08 16:54	11.1
3/5/08 18:54	7.2
3/5/08 20:54	5.6
3/5/08 22:54	1.1
3/6/08 0:54	-1.1
3/6/08 2:54	-2.2
3/6/08 4:54	-2.8
3/6/08 6:54	-2.2
3/6/08 8:54	1.7
3/6/08 10:54	6.7
3/6/08 12:54	11.7
3/6/08 14:54	13.3
3/6/08 16:54	11.7
3/6/08 18:54	8.9
3/6/08 20:54	8.3
3/6/08 22:54	4.4
3/7/08 0:54	1.1
3/7/08 2:54	0.0
3/7/08 4:54	0.0
3/7/08 6:54	0.0
3/7/08 8:54	2.8
3/7/08 10:54	6.7
3/7/08 12:54	7.8

Date	Temp (°C)
3/7/08 14:54	10.0
3/7/08 16:54	9.4
3/7/08 18:54	8.3
3/7/08 20:54	7.8
3/7/08 22:54	7.2
3/7/08 2:54	0.0
3/7/08 4:54	0.0
3/7/08 6:54	0.0
3/7/08 8:54	2.8
3/7/08 10:54	6.7
3/7/08 12:54	7.8
3/7/08 14:54	10.0
3/7/08 16:54	9.4
3/7/08 18:54	8.3
3/7/08 20:54	7.8
3/7/08 22:54	7.2
3/7/08 0:54	1.1
3/7/08 2:54	0.0
3/7/08 4:54	0.0
3/7/08 6:54	0.0
3/7/08 8:54	2.8
3/7/08 10:54	6.7
3/7/08 12:54	7.8

Table 2. 2009 Olympia Airport Ambient Air Temperature

Date	Temp (°C)
2/26/09 0:54	-0.6
2/26/09 2:54	0.0
2/26/09 4:54	-0.6
2/26/09 6:54	-1.7
2/26/09 8:54	0.0
2/26/09 10:54	2.8
2/26/09 12:54	3.9
2/26/09 14:54	4.4
2/26/09 16:54	3.3
2/26/09 18:54	2.2
2/26/09 20:54	-1.7
2/26/09 22:54	-2.8
2/27/09 0:54	1.7
2/27/09 2:54	-1.7
2/27/09 4:54	-2.2
2/27/09 6:54	-1.1
2/27/09 8:54	3.3
2/27/09 10:54	7.8
2/27/09 12:54	8.3
2/27/09 14:54	9.4
2/27/09 16:54	9.4
2/27/09 18:54	7.8
2/27/09 20:54	7.2
2/27/09 22:54	6.7
2/28/09 0:54	1.7
2/28/09 2:54	-1.7
2/28/09 4:54	-2.2
2/28/09 6:54	-1.1
2/28/09 8:54	3.3
2/28/09 10:54	7.8
2/28/09 12:54	8.3
2/28/09 14:54	9.4
2/28/09 16:54	9.4
2/28/09 18:54	7.8
2/28/09 20:54	7.2
2/28/09 22:54	6.7
3/1/09 0:54	6.1
3/1/09 2:54	5.6

Date	Temp (°C)
3/1/09 4:54	5.6
3/1/09 6:54	5.6
3/1/09 8:54	6.1
3/1/09 10:54	7.8
3/1/09 12:54	8.3
3/1/09 14:54	8.3
3/1/09 16:54	8.9
3/1/09 18:54	8.3
3/1/09 20:54	7.8
3/1/09 22:54	7.8
3/2/09 0:54	7.8
3/2/09 2:54	7.8
3/2/09 4:54	9.4
3/2/09 6:54	8.3
3/2/09 8:54	8.9
3/2/09 10:54	12.2
3/2/09 12:54	12.8
3/2/09 14:54	10.6
3/2/09 16:54	8.9
3/2/09 18:54	6.7
3/2/09 20:54	4.4
3/2/09 22:54	3.9
3/3/09 0:54	4.4
3/3/09 2:54	4.4
3/3/09 4:54	4.4
3/3/09 6:54	3.1
3/3/09 8:54	4.4
3/3/09 10:54	11.1
3/3/09 12:54	10.6
3/3/09 14:54	11.1
3/3/09 16:54	11.1
3/3/09 18:54	7.8
3/3/09 20:54	6.1
3/3/09 22:54	5.0
3/4/09 0:54	3.9
3/4/09 2:54	3.9
3/4/09 4:54	3.3
3/4/09 6:54	1.1

Date	Temp (°C)
3/4/09 8:54	4.4
3/4/09 10:54	7.8
3/4/09 12:54	8.3
3/4/09 14:54	9.4
3/4/09 16:54	8.3
3/4/09 18:54	7.8
3/4/09 20:54	6.7
3/4/09 22:54	6.7
3/5/09 0:54	6.7
3/5/09 2:54	5.6
3/5/09 4:54	5.0
3/5/09 6:54	5.0
3/5/09 8:54	5.0
3/5/09 10:54	5.0
3/5/09 12:54	6.1
3/5/09 14:54	7.8
3/5/09 16:54	6.1
3/5/09 18:54	6.1
3/5/09 20:54	2.8
3/5/09 22:54	1.7
3/6/09 0:54	0.6
3/6/09 2:54	-1.1
3/6/09 4:54	-3.3
3/6/09 6:54	-3.3
3/6/09 8:54	0.0
3/6/09 10:54	3.9
3/6/09 12:54	6.7
3/6/09 14:54	8.9
3/6/09 16:54	8.3
3/6/09 18:54	2.8
3/6/09 20:54	1.1
3/6/09 22:54	-1.7
3/7/09 0:54	2.2
3/7/09 2:54	2.8
3/7/09 4:54	2.8
3/7/09 6:54	3.3
3/7/09 8:54	5.0
3/7/09 10:54	7.2

Table 2 continued

Date	Temp (°C)
3/7/09 12:54	4.4
3/7/09 14:54	5.0
3/7/09 16:54	2.8
3/7/09 18:54	1.7
3/7/09 20:54	1.1
3/7/09 22:54	0.6
3/8/09 0:54	-0.6
3/8/09 1:54	-1.1
3/8/09 3:54	-1.1
3/8/09 6:54	-1.1
3/8/09 8:54	0.6
3/8/09 10:54	1.7
3/8/09 12:54	3.3
3/8/09 14:54	2.8
3/8/09 16:54	5.0
3/8/09 18:54	2.0
3/8/09 20:54	1.1
3/8/09 22:54	0.0
3/9/09 0:54	-0.6
3/9/09 2:54	-0.6
3/9/09 4:08	0.0
3/9/09 6:54	-0.6
3/9/09 8:54	0.0
3/9/09 10:54	2.2
3/9/09 12:54	3.9
3/9/09 14:54	2.2
3/9/09 16:54	5.0
3/9/09 18:54	-0.6
3/9/09 20:54	-1.1
3/9/09 22:54	-0.6
3/10/09 0:54	-2.2
3/10/09 2:54	-4.4
3/10/09 4:54	-4.4
3/10/09 6:54	-3.3
3/10/09 8:54	-1.1
3/10/09 10:54	-0.6
3/10/09 12:54	3.3
3/10/09 14:54	4.4

Date	Temp (°C)
3/10/09 16:54	5.6
3/10/09 18:54	3.9
3/10/09 20:54	2.8
3/10/09 22:54	2.2
3/11/09 0:54	1.7
3/11/09 2:54	1.1
3/11/09 4:54	-1.1
3/11/09 6:54	-2.2
3/11/09 8:54	0.6
3/11/09 10:54	3.3
3/11/09 12:54	5.6
3/11/09 14:54	6.7
3/11/09 16:54	7.2
3/11/09 18:54	4.4
3/11/09 20:54	1.7
3/11/09 22:54	-1.1
3/12/09 0:54	-1.7
3/12/09 2:54	-2.8
3/12/09 4:54	-5.0
3/12/09 6:54	-5.6
3/12/09 8:54	-2.2
3/12/09 10:54	4.4
3/12/09 12:54	8.3
3/12/09 14:54	10.0
3/12/09 16:54	11.1
3/12/09 18:54	8.3
3/12/09 20:54	2.8
3/12/09 22:54	0.6
3/13/09 0:54	-0.6
3/13/09 2:54	-2.2
3/13/09 4:54	-3.3
3/13/09 6:54	-3.9
3/13/09 8:54	-1.1
3/13/09 10:54	6.1
3/13/09 12:54	11.1
3/13/09 14:54	13.9
3/13/09 16:54	14.4
3/13/09 18:54	10.6

Date	Temp (°C)
3/13/09 20:54	8.3
3/13/09 22:54	6.7
3/14/09 0:54	6.7
3/14/09 2:54	6.7
3/14/09 4:54	6.0
3/14/09 6:54	5.0
3/14/09 8:54	4.4
3/14/09 10:54	3.9
3/14/09 12:54	6.1
3/14/09 14:54	6.1
3/14/09 16:54	5.6
3/14/09 18:54	5.0
3/14/09 20:54	3.3
3/14/09 22:54	2.2
3/15/09 0:54	5.6
3/15/09 2:54	5.0
3/15/09 4:54	5.0
3/15/09 6:54	4.4
3/15/09 8:54	5.0
3/15/09 10:54	10.0
3/15/09 12:54	13.3
3/15/09 14:54	15.6
3/15/09 16:54	16.1
3/15/09 18:54	15.0
3/15/09 20:54	11.7
3/15/09 22:54	8.9
3/16/09 0:54	7.2
3/16/09 2:54	7.8
3/16/09 4:54	7.8
3/16/09 6:54	6.1
3/16/09 8:54	7.8
3/16/09 10:54	11.7
3/16/09 12:54	11.1
3/16/09 14:54	10.6
3/16/09 16:54	11.7
3/16/09 18:54	10.6
3/16/09 20:54	8.9
3/16/09 22:54	6.7

Table 2 continued

Date	Temp (°C)
3/17/09 0:54	3.9
3/17/09 2:54	6.7
3/17/09 4:54	3.9
3/17/09 6:54	2.8
3/17/09 8:54	4.4
3/17/09 10:54	8.9
3/17/09 12:54	11.1
3/17/09 14:54	12.2
3/17/09 16:54	10.6
3/17/09 18:54	9.4
3/17/09 20:54	5.0
3/17/09 22:54	2.2
3/18/09 0:54	0.0
3/18/09 2:54	-1.7
3/18/09 4:54	-2.2
3/18/09 6:54	-1.0
3/18/09 8:54	2.2
3/18/09 10:54	4.4
3/18/09 12:54	10.0
3/18/09 14:54	11.1
3/18/09 16:54	12.2
3/18/09 18:54	10.0
3/18/09 20:54	6.7
3/18/09 22:54	4.4
3/19/09 0:54	0.0
3/19/09 2:54	-1.7
3/19/09 4:54	-2.2
3/19/09 6:54	-1.0
3/19/09 8:54	2.2
3/19/09 10:54	4.4
3/19/09 12:54	10.0
3/19/09 14:54	11.1
3/19/09 16:54	12.2
3/19/09 18:54	10.0
3/19/09 20:54	6.7
3/19/09 22:54	4.4
3/20/09 0:54	0.6
3/20/09 2:54	-0.6

Date	Temp (°C)
3/20/09 4:54	-0.6
3/20/09 6:54	-1.1
3/20/09 8:54	2.2
3/20/09 10:54	11.1
3/20/09 12:54	16.1
3/20/09 14:54	20.0
3/20/09 16:54	20.0
3/20/09 18:54	13.9
3/20/09 20:54	12.2
3/20/09 22:54	11.1
3/21/09 0:54	11.1
3/21/09 2:54	11.1
3/21/09 4:54	9.4
3/21/09 6:54	8.9
3/21/09 8:54	8.9
3/21/09 10:54	9.4
3/21/09 12:54	10.0
3/21/09 14:54	12.2
3/21/09 16:54	11.7
3/21/09 18:54	9.4
3/21/09 20:54	7.8
3/21/09 22:54	7.2
3/22/09 0:54	6.1
3/22/09 2:54	5.0
3/22/09 4:54	5.0
3/22/09 6:54	3.9
3/22/09 8:54	6.1
3/22/09 10:54	9.4
3/22/09 12:54	11.7
3/22/09 14:54	13.3
3/22/09 16:54	12.2
3/22/09 18:54	11.1
3/22/09 20:54	7.8
3/22/09 22:54	4.4
3/23/09 0:54	2.2
3/23/09 2:54	0.6
3/23/09 4:54	1.1
3/23/09 6:54	0.6

Date	Temp (°C)
3/23/09 8:54	2.8
3/23/09 10:54	8.3
3/23/09 12:54	11.7
3/23/09 14:54	13.9
3/23/09 16:54	13.9
3/23/09 18:54	11.7
3/23/09 20:54	9.0
3/23/09 22:54	5.6
3/24/09 0:54	3.9
3/24/09 2:54	3.3
3/24/09 4:54	1.7
3/24/09 6:54	1.1
3/24/09 8:54	5.6
3/24/09 10:54	10.6
3/24/09 13:54	16.7
3/24/09 14:54	17.8
3/24/09 16:54	20.0
3/24/09 18:54	17.2
3/24/09 20:54	12.8
3/24/09 22:54	8.9
3/25/09 0:54	9.4
3/25/09 2:54	8.3
3/25/09 4:54	8.3
3/25/09 6:54	7.8
3/25/09 8:54	7.8
3/25/09 10:54	10.0
3/25/09 12:54	11.1
3/25/09 14:54	10.6
3/25/09 16:54	9.4
3/25/09 18:54	8.3
3/25/09 20:54	7.8
3/25/09 22:54	7.2
3/26/09 0:54	6.1
3/26/09 2:54	5.0
3/26/09 4:54	5.0
3/26/09 6:54	5.0
3/26/09 8:54	5.0
3/26/09 10:54	7.8

Table 2 continued

Date	Temp (°C)
3/26/09 12:54	9.4
3/26/09 14:54	10.6
3/26/09 16:54	11.7
3/26/09 18:54	10.0
3/26/09 20:54	6.1
3/26/09 22:54	5.0
3/27/09 0:54	4.4
3/27/09 2:54	2.8
3/27/09 4:54	4.4
3/27/09 6:54	3.3
3/27/09 8:54	5.6
3/27/09 10:54	10.0
3/27/09 12:54	12.8
3/27/09 14:54	15.6
3/27/09 16:54	17.2
3/27/09 18:54	13.9
3/27/09 20:54	10.0
3/27/09 22:54	8.9
3/28/09 0:54	4.4
3/28/09 2:54	2.8
3/28/09 4:54	4.4
3/28/09 6:54	3.3
3/28/09 8:54	5.6
3/28/09 10:54	10.0
3/28/09 12:54	12.8
3/28/09 14:54	15.6
3/28/09 16:54	17.2
3/28/09 18:54	13.9
3/28/09 20:54	10.0
3/28/09 22:54	8.9
3/29/09 0:54	7.8
3/29/09 2:54	8.3
3/29/09 4:54	7.8
3/29/09 6:54	7.2
3/29/09 8:54	6.7
3/29/09 10:54	6.7
3/29/09 12:54	8.3
3/29/09 14:54	9.4
3/29/09 16:54	6.1
3/29/09 18:54	5.6
3/29/09 20:54	5.0
3/29/09 22:54	5.0
3/30/09 0:54	3.9
3/30/09 2:54	3.3
3/30/09 4:54	3.3
3/30/09 6:54	3.9
3/30/09 8:54	5.0
3/30/09 10:54	5.0

Table 3 2008 The Evergreen State College Ambient Air Temperature

Data	Temp (°C)
2/22/08 0:01	5.9
2/22/08 2:00	5.0
2/22/08 4:00	4.3
2/22/08 6:00	3.8
2/22/08 8:00	2.4
2/22/08 10:00	4.2
2/22/08 12:01	10.4
2/22/08 14:00	12.6
2/22/08 16:00	11.4
2/22/08 18:00	8.6
2/22/08 20:00	7.1
2/22/08 22:00	6.4
2/23/08 0:01	5.8
2/23/08 2:00	5.6
2/23/08 4:00	5.1
2/23/08 6:00	4.5
2/23/08 8:00	3.2
2/23/08 10:00	6.8
2/23/08 12:01	8.7
2/23/08 14:00	10.5
2/23/08 16:00	11.2
2/23/08 18:00	10.1
2/23/08 20:00	7.8
2/23/08 22:00	5.8
2/24/08 0:01	5.6
2/24/08 2:00	6.3
2/24/08 4:00	6.2
2/24/08 6:00	5.6
2/24/08 8:00	5.6
2/24/08 10:00	6.8
2/24/08 12:01	9.1
2/24/08 14:00	11.4
2/24/08 16:00	13.0
2/24/08 18:00	11.2
2/24/08 20:00	8.4
2/24/08 22:00	7.7

Data	Temp (°C)
2/25/08 0:01	5.8
2/25/08 2:00	5.9
2/25/08 4:00	6.8
2/25/08 6:00	6.6
2/25/08 8:00	6.4
2/25/08 10:00	9.2
2/25/08 12:01	10.4
2/25/08 14:00	11.2
2/25/08 16:00	10.2
2/25/08 18:00	9.2
2/25/08 20:00	8.4
2/25/08 22:00	6.7
2/26/08 0:01	5.2
2/26/08 2:00	4.2
2/26/08 4:00	3.3
2/26/08 6:00	2.7
2/26/08 8:00	2.8
2/26/08 10:00	3.4
2/26/08 12:01	7.0
2/26/08 14:00	10.2
2/26/08 16:00	12.1
2/26/08 18:00	9.7
2/26/08 20:00	7.8
2/26/08 22:00	6.7
2/27/08 0:01	5.4
2/27/08 2:00	4.5
2/27/08 4:00	5.1
2/27/08 6:00	5.9
2/27/08 8:00	5.8
2/27/08 10:00	7.3
2/27/08 12:01	10.6
2/27/08 14:00	12.2
2/27/08 16:00	11.1
2/27/08 18:00	9.4
2/27/08 20:00	9.1
2/27/08 22:00	8.7

Data	Temp (°C)
2/28/08 0:01	8.6
2/28/08 2:00	8.4
2/28/08 4:00	8.4
2/28/08 6:00	8.3
2/28/08 8:00	8.3
2/28/08 10:00	8.6
2/28/08 12:01	9.3
2/28/08 14:00	11.3
2/28/08 16:00	12.7
2/28/08 18:00	10.9
2/28/08 20:00	8.6
2/28/08 22:00	7.8
2/29/08 0:01	7.2
2/29/08 2:00	6.2
2/29/08 4:00	5.8
2/29/08 6:00	6.1
2/29/08 8:00	6.1
2/29/08 10:00	10.1
2/29/08 12:01	12.3
2/29/08 14:00	13.1
2/29/08 16:00	9.5
2/29/08 18:00	7.3
2/29/08 20:00	6.8
2/29/08 22:00	6.2
3/1/08 0:01	5.1
3/1/08 2:00	4.3
3/1/08 4:00	3.3
3/1/08 6:00	3.5
3/1/08 8:00	4.1
3/1/08 10:00	5.3
3/1/08 12:01	7.1
3/1/08 14:00	8.0
3/1/08 16:00	8.6
3/1/08 18:00	7.0
3/1/08 20:00	6.2
3/1/08 22:00	5.5

Table 3 continued

Data	Temp (°C)
3/2/08 0:01	4.8
3/2/08 2:00	3.7
3/2/08 4:00	1.7
3/2/08 6:00	1.4
3/2/08 8:00	1.1
3/2/08 10:00	3.8
3/2/08 12:01	7.0
3/2/08 14:00	9.2
3/2/08 16:00	10.9
3/2/08 18:00	8.6
3/2/08 20:00	7.3
3/2/08 22:00	5.7
3/3/08 0:01	4.8
3/3/08 2:00	5.7
3/3/08 4:00	5.3
3/3/08 6:00	5.1
3/3/08 8:00	4.2
3/3/08 10:00	3.9
3/3/08 12:01	4.4
3/3/08 14:00	5.9
3/3/08 16:00	7.4
3/3/08 18:00	5.6
3/3/08 20:00	5.4
3/3/08 22:00	5.4
3/4/08 0:01	5.3
3/4/08 2:00	5.3
3/4/08 4:00	5.3
3/4/08 6:00	5.4
3/4/08 8:00	4.8
3/4/08 10:00	5.7
3/4/08 12:01	8.6
3/4/08 14:00	9.1
3/4/08 16:00	10.4
3/4/08 18:00	8.8
3/4/08 20:00	5.2
3/4/08 22:00	3.8

Data	Temp (°C)
3/5/08 0:01	3.1
3/5/08 2:00	1.6
3/5/08 4:00	0.8
3/5/08 6:00	1.7
3/5/08 8:00	2.1
3/5/08 10:00	2.6
3/5/08 12:01	5.7
3/5/08 14:00	8.4
3/5/08 16:00	10.8
3/5/08 18:00	9.7
3/5/08 20:00	6.3
3/5/08 22:00	4.6
3/6/08 0:01	3.5
3/6/08 2:00	2.2
3/6/08 4:00	1.7
3/6/08 6:00	1.2
3/6/08 8:00	1.0
3/6/08 10:00	5.2
3/6/08 12:01	9.4
3/6/08 14:00	12.5
3/6/08 16:00	11.4
3/6/08 18:00	8.9
3/6/08 20:00	8.2
3/6/08 22:00	7.2
3/7/08 0:01	5.2
3/7/08 2:00	4.1
3/7/08 4:00	3.4
3/7/08 6:00	3.8
3/7/08 8:00	3.4
3/7/08 10:00	6.2
3/7/08 12:00	7.3
3/7/08 14:00	8.8
3/7/08 16:00	9.7
3/7/08 18:00	8.2
3/7/08 20:00	7.9
3/7/08 22:00	7.8

Table 4 2009 The Evergreen State College Ambient Air Temperature

Date	Temp (°C)	Date	Temp (°C)	Date	Temp (°C)
2/26/09 0:00	0.0	3/1/09 6:00	4.7	3/4/09 12:00	6.0
2/26/09 2:00	-1.6	3/1/09 8:00	5.0	3/4/09 14:00	7.5
2/26/09 4:00	-1.6	3/1/09 10:00	5.8	3/4/09 16:00	10.0
2/26/09 6:00	-1.8	3/1/09 12:00	7.2	3/4/09 18:00	9.8
2/26/09 8:00	-2.5	3/1/09 14:00	8.6	3/4/09 20:00	7.2
2/26/09 10:00	-0.5	3/1/09 16:00	8.5	3/4/09 22:00	6.6
2/26/09 12:00	1.5	3/1/09 18:00	8.8	3/5/09 0:00	6.8
2/26/09 14:00	3.2	3/1/09 20:00	7.8	3/5/09 2:00	6.2
2/26/09 16:00	4.0	3/1/09 22:00	7.6	3/5/09 4:00	5.0
2/26/09 18:00	3.4	3/2/09 0:00	7.3	3/5/09 6:00	4.1
2/26/09 20:00	0.7	3/2/09 2:00	7.5	3/5/09 8:00	4.2
2/26/09 22:00	-1.3	3/2/09 4:00	7.2	3/5/09 10:00	5.3
2/27/09 0:00	-1.9	3/2/09 6:00	8.4	3/5/09 12:00	4.6
2/27/09 2:00	-1.3	3/2/09 8:00	7.8	3/5/09 14:00	5.9
2/27/09 4:00	-0.6	3/2/09 10:00	9.0	3/5/09 16:00	7.9
2/27/09 6:00	-0.6	3/2/09 12:00	11.4	3/5/09 18:00	6.4
2/27/09 8:00	-0.6	3/2/09 14:00	12.3	3/5/09 20:00	2.6
2/27/09 10:00	1.5	3/2/09 16:00	11.2	3/5/09 22:00	2.0
2/27/09 12:00	4.7	3/2/09 18:00	8.8	3/6/09 0:00	2.1
2/27/09 14:00	6.3	3/2/09 20:00	5.6	3/6/09 2:00	0.4
2/27/09 16:00	6.8	3/2/09 22:00	3.4	3/6/09 4:00	-0.9
2/27/09 18:00	6.3	3/3/09 0:00	2.9	3/6/09 6:00	-1.9
2/27/09 20:00	4.4	3/3/09 2:00	2.4	3/6/09 8:00	-2.3
2/27/09 22:00	3.0	3/3/09 4:00	3.4	3/6/09 10:00	0.9
2/28/09 0:00	2.5	3/3/09 6:00	4.4	3/6/09 12:00	4.5
2/28/09 2:00	2.6	3/3/09 8:00	4.3	3/6/09 14:00	6.3
2/28/09 4:00	0.9	3/3/09 10:00	4.5	3/6/09 16:00	8.5
2/28/09 6:00	-1.4	3/3/09 12:00	9.7	3/6/09 18:00	7.9
2/28/09 8:00	-0.8	3/3/09 14:00	10.6	3/6/09 20:00	3.1
2/28/09 10:00	2.5	3/3/09 16:00	10.8	3/6/09 22:00	1.7
2/28/09 12:00	6.3	3/3/09 18:00	10.9	3/7/09 0:00	0.1
2/28/09 14:00	7.8	3/3/09 20:00	7.7	3/7/09 2:00	1.4
2/28/09 16:00	9.1	3/3/09 22:00	5.3	3/7/09 4:00	2.7
2/28/09 18:00	9.2	3/4/09 0:00	5.5	3/7/09 6:00	1.7
2/28/09 20:00	6.2	3/4/09 2:00	3.6	3/7/09 8:00	2.7
2/28/09 22:00	5.5	3/4/09 4:00	3.7	3/7/09 10:00	4.6
3/1/09 0:00	5.2	3/4/09 6:00	3.7	3/7/09 12:00	6.2
3/1/09 2:00	5.1	3/4/09 8:00	2.2	3/7/09 14:00	4.0
3/1/09 4:00	4.6	3/4/09 10:00	4.1	3/7/09 16:00	3.1

Date	Temp (°C)	Date	Temp (°C)	Date	Temp (°C)
3/7/09 18:00	1.9	3/11/09 0:00	1.3	3/14/09 6:00	4.7
3/7/09 20:00	0.8	3/11/09 2:00	0.5	3/14/09 8:00	3.9
3/7/09 22:00	0.9	3/11/09 4:00	-0.2	3/14/09 10:00	3.3
3/8/09 0:00	0.9	3/11/09 6:00	-2.2	3/14/09 12:00	4.6
3/8/09 2:00	0.4	3/11/09 8:00	-2.3	3/14/09 14:00	5.6
3/8/09 4:00	-1.7	3/11/09 10:00	0.9	3/14/09 16:00	5.2
3/8/09 6:00	-0.8	3/11/09 12:00	3.3	3/14/09 18:00	4.6
3/8/09 8:00	-1.4	3/11/09 14:00	5.2	3/14/09 20:00	3.7
3/8/09 10:00	0.2	3/11/09 16:00	6.2	3/14/09 22:00	2.3
3/8/09 12:00	1.2	3/11/09 18:00	6.0	3/15/09 0:00	1.0
3/8/09 14:00	3.2	3/11/09 20:00	3.8	3/15/09 2:00	1.6
3/8/09 16:00	5.2	3/11/09 22:00	0.8	3/15/09 4:00	2.1
3/8/09 18:00	4.2	3/12/09 0:00	-1.4	3/15/09 6:00	1.1
3/8/09 20:00	0.4	3/12/09 2:00	-3.6	3/15/09 8:00	-0.1
3/8/09 22:00	0.2	3/12/09 4:00	-3.5	3/15/09 10:00	0.1
3/9/09 0:00	-1.9	3/12/09 6:00	-3.6	3/15/09 12:00	2.5
3/9/09 2:00	-1.7	3/12/09 8:00	-3.8	3/15/09 14:00	5.2
3/9/09 4:00	-1.5	3/12/09 10:00	2.1	3/15/09 16:00	7.5
3/9/09 6:00	-1.2	3/12/09 12:00	5.2	3/15/09 18:00	3.2
3/9/09 8:00	-0.9	3/12/09 14:00	7.5	3/15/09 20:00	3.1
3/9/09 10:00	-0.1	3/12/09 16:00	9.5	3/15/09 22:00	2.8
3/9/09 12:00	3.3	3/12/09 18:00	9.9	3/16/09 0:00	1.5
3/9/09 14:00	4.6	3/12/09 20:00	5.0	3/16/09 2:00	1.8
3/9/09 16:00	5.7	3/12/09 22:00	1.2	3/16/09 4:00	1.6
3/9/09 18:00	0.9	3/13/09 0:00	-0.4	3/16/09 6:00	1.1
3/9/09 20:00	-0.2	3/13/09 2:00	-1.5	3/16/09 8:00	1.1
3/9/09 22:00	-0.7	3/13/09 4:00	-2.3	3/16/09 10:00	2.4
3/10/09 0:00	-0.9	3/13/09 6:00	-2.8	3/16/09 12:00	2.0
3/10/09 2:00	-1.3	3/13/09 8:00	-3.4	3/16/09 14:00	5.7
3/10/09 4:00	-2.3	3/13/09 10:00	1.9	3/16/09 16:00	5.0
3/10/09 6:00	-2.7	3/13/09 12:00	9.1	3/16/09 18:00	5.0
3/10/09 8:00	-3.7	3/13/09 14:00	12.2	3/16/09 20:00	3.3
3/10/09 10:00	-0.8	3/13/09 16:00	14.8	3/16/09 22:00	2.4
3/10/09 12:00	1.9	3/13/09 18:00	12.4	3/17/09 0:00	1.9
3/10/09 14:00	3.4	3/13/09 20:00	8.6	3/17/09 2:00	2.2
3/10/09 16:00	4.3	3/13/09 22:00	7.3	3/17/09 4:00	2.0
3/10/09 18:00	4.2	3/14/09 0:00	5.9	3/17/09 6:00	0.5
3/10/09 20:00	2.9	3/14/09 2:00	5.9	3/17/09 8:00	1.2
3/10/09 22:00	2.2	3/14/09 4:00	5.7	3/17/09 10:00	3.5

Table 4 continued

Date	Temp (°C)
3/17/09 12:00	7.3
3/17/09 14:00	5.9
3/17/09 16:00	6.1
3/17/09 18:00	5.9
3/17/09 20:00	4.6
3/17/09 22:00	2.6
3/18/09 0:00	1.4
3/18/09 2:00	2.3
3/18/09 4:00	4.1
3/18/09 6:00	3.4
3/18/09 8:00	3.2
3/18/09 10:00	5.8
3/18/09 12:00	8.2
3/18/09 14:00	10.9
3/18/09 16:00	12.0
3/18/09 18:00	10.3
3/18/09 20:00	8.4
3/18/09 22:00	6.1
3/19/09 0:00	6.1
3/19/09 2:00	5.9
3/19/09 4:00	5.7
3/19/09 6:00	6.0
3/19/09 8:00	5.8
3/19/09 10:00	6.6
3/19/09 12:00	7.7
3/19/09 14:00	8.5
3/19/09 16:00	9.6
3/19/09 18:00	10.1
3/19/09 20:00	9.2
3/19/09 22:00	8.5
3/20/09 0:00	8.2
3/20/09 2:00	7.9
3/20/09 4:00	8.0
3/20/09 6:00	7.8
3/20/09 8:00	7.4
3/20/09 10:00	8.9
3/20/09 12:00	10.6
3/20/09 14:00	11.7
3/20/09 16:00	8.3

Date	Temp (°C)
3/20/09 18:00	7.6
3/20/09 20:00	4.3
3/20/09 22:00	0.6
3/21/09 0:00	-0.4
3/21/09 2:00	-0.6
3/21/09 4:00	-2.2
3/21/09 6:00	-0.3
3/21/09 8:00	0.0
3/21/09 10:00	0.9
3/21/09 12:00	3.4
3/21/09 14:00	7.5
3/21/09 16:00	10.3
3/21/09 18:00	10.8
3/21/09 20:00	6.4
3/21/09 22:00	2.6
3/22/09 0:00	2.2
3/22/09 2:00	1.8
3/22/09 4:00	1.9
3/22/09 6:00	2.7
3/22/09 8:00	3.0
3/22/09 10:00	4.8
3/22/09 12:00	5.8
3/22/09 14:00	7.8
3/22/09 16:00	7.0
3/22/09 18:00	7.6
3/22/09 20:00	4.9
3/22/09 22:00	4.1
3/23/09 0:00	3.9
3/23/09 2:00	2.5
3/23/09 4:00	1.3
3/23/09 6:00	0.6
3/23/09 8:00	2.4
3/23/09 10:00	4.2
3/23/09 12:00	5.9
3/23/09 14:00	3.9
3/23/09 16:00	3.7
3/23/09 18:00	3.7
3/23/09 20:00	3.3
3/23/09 22:00	3.4

Date	Temp (°C)
3/24/09 0:00	3.5
3/24/09 2:00	3.7
3/24/09 4:00	4.0
3/24/09 6:00	4.3
3/24/09 8:00	4.6
3/24/09 10:00	5.5
3/24/09 12:00	7.2
3/24/09 14:00	8.5
3/24/09 16:00	9.0
3/24/09 18:00	7.7
3/24/09 20:00	6.7
3/24/09 22:00	5.8
3/25/09 0:00	5.9
3/25/09 2:00	5.2
3/25/09 4:00	4.2
3/25/09 6:00	4.1
3/25/09 8:00	4.0
3/25/09 10:00	4.5
3/25/09 12:00	7.0
3/25/09 14:00	8.6
3/25/09 16:00	5.7
3/25/09 18:00	6.2
3/25/09 20:00	5.2
3/25/09 22:00	4.5
3/26/09 0:00	1.7
3/26/09 2:00	0.0
3/26/09 4:00	-0.6
3/26/09 6:00	-0.7
3/26/09 8:00	-0.1
3/26/09 10:00	1.4
3/26/09 12:00	6.3
3/26/09 14:00	9.8
3/26/09 16:00	10.5
3/26/09 18:00	10.4
3/26/09 20:00	8.8
3/26/09 22:00	5.0
3/27/09 0:00	3.1
3/27/09 2:00	3.7
3/27/09 4:00	4.3

Table 4 continued

Date	Temp (°C)
3/27/09 6:00	4.4
3/27/09 8:00	4.7
3/27/09 10:00	6.0
3/27/09 12:00	6.8
3/27/09 14:00	9.5
3/27/09 16:00	11.5
3/27/09 18:00	10.6
3/27/09 20:00	7.7
3/27/09 22:00	6.3
3/28/09 0:00	5.8
3/28/09 2:00	5.7
3/28/09 4:00	5.1
3/28/09 6:00	4.9
3/28/09 8:00	3.7
3/28/09 10:00	2.2
3/28/09 12:00	2.5
3/28/09 14:00	2.4
3/28/09 16:00	0.6
3/28/09 18:00	0.9
3/28/09 20:00	1.8
3/28/09 22:00	1.4
3/29/09 0:00	1.9
3/29/09 2:00	2.2
3/29/09 4:00	2.0
3/29/09 6:00	0.5
3/29/09 8:00	-0.5
3/29/09 10:00	4.3
3/29/09 12:00	7.9
3/29/09 14:00	9.5
3/29/09 16:00	10.3
3/29/09 18:00	9.7
3/29/09 20:00	7.5
3/29/09 22:00	4.6
3/30/09 0:00	4.0
3/30/09 2:00	2.1
3/30/09 4:00	2.0
3/30/09 6:00	2.8
3/30/09 8:00	3.0
3/30/09 10:00	4.2

Table 5 2009 Champion Pacific Timberlands Weather Data (Conboy Lake Ambient Air Temperature)

Date	Temp (°C)
2/26/09 14:00	-1.1
2/26/09 16:00	-1.8
2/26/09 18:00	-3.1
2/26/09 20:00	-3.7
2/26/09 22:00	-2.7
2/27/09 0:00	-1.4
2/27/09 2:00	0.6
2/27/09 4:00	1.2
2/27/09 6:00	0.7
2/27/09 8:00	-0.3
2/27/09 10:00	-3.8
2/27/09 12:00	-5.9
2/27/09 14:00	-7.1
2/27/09 16:00	-8.1
2/27/09 18:00	-8.5
2/27/09 20:00	-9.0
2/27/09 22:00	-9.0
2/28/09 0:00	-3.1
2/28/09 2:00	4.6
2/28/09 4:00	4.3
2/28/09 6:00	3.9
2/28/09 8:00	1.1
2/28/09 10:00	0.0
2/28/09 12:00	-1.5
2/28/09 14:00	-2.3
2/28/09 16:00	-3.9
2/28/09 18:00	-5.2
2/28/09 20:00	-5.7
2/28/09 22:00	-3.3
3/1/09 0:00	3.1
3/1/09 2:00	5.3
3/1/09 4:00	4.5
3/1/09 6:00	4.9
3/1/09 8:00	2.2
3/1/09 10:00	1.1
3/1/09 12:00	0.4
3/1/09 14:00	0.0

Date	Temp (°C)
3/1/09 16:00	0.2
3/1/09 18:00	0.3
3/1/09 20:00	0.0
3/1/09 22:00	0.7
3/2/09 0:00	2.8
3/2/09 2:00	3.6
3/2/09 4:00	1.7
3/2/09 6:00	1.2
3/2/09 8:00	1.3
3/2/09 10:00	0.7
3/2/09 12:00	0.3
3/2/09 14:00	-0.2
3/2/09 16:00	-0.8
3/2/09 18:00	-0.2
3/2/09 20:00	0.9
3/2/09 22:00	0.5
3/3/09 0:00	4.6
3/3/09 2:00	9.3
3/3/09 4:00	9.5
3/3/09 6:00	7.2
3/3/09 8:00	3.7
3/3/09 10:00	2.6
3/3/09 12:00	2.4
3/3/09 14:00	2.0
3/3/09 16:00	3.1
3/3/09 18:00	1.3
3/3/09 20:00	0.1
3/3/09 22:00	0.6
3/4/09 0:00	3.8
3/4/09 2:00	8.7
3/4/09 4:00	7.9
3/4/09 6:00	1.1
3/4/09 8:00	1.2
3/4/09 10:00	0.0
3/4/09 12:00	-0.6
3/4/09 14:00	-0.2
3/4/09 16:00	-0.5

Date	Temp (°C)
3/4/09 18:00	-0.8
3/4/09 20:00	-2.1
3/4/09 22:00	-2.7
3/5/09 0:00	-0.2
3/5/09 2:00	5.6
3/5/09 4:00	8.2
3/5/09 6:00	6.3
3/5/09 8:00	3.6
3/5/09 10:00	2.9
3/5/09 12:00	2.9
3/5/09 14:00	2.9
3/5/09 16:00	1.3
3/5/09 18:00	1.6
3/5/09 20:00	1.6
3/5/09 22:00	1.5
3/6/09 0:00	2.8
3/6/09 2:00	4.0
3/6/09 4:00	4.4
3/6/09 6:00	3.9
3/6/09 8:00	1.9
3/6/09 10:00	0.7
3/6/09 12:00	0.4
3/6/09 14:00	-0.2
3/6/09 16:00	-0.6
3/6/09 18:00	-1.7
3/6/09 20:00	-2.3
3/6/09 22:00	-2.2
3/7/09 0:00	-0.5
3/7/09 2:00	1.2
3/7/09 4:00	2.9
3/7/09 6:00	4.1
3/7/09 8:00	2.5
3/7/09 10:00	-0.3
3/7/09 12:00	-2.8
3/7/09 13:00	-3.4
3/7/09 17:00	-2.2
3/7/09 18:00	-2.3

Table 5 continued

Date	Temp (°C)
3/7/09 20:00	0.7
3/7/09 22:00	1.8
3/8/09 0:00	4.0
3/8/09 2:00	4.6
3/8/09 4:00	1.6
3/8/09 6:00	0.6
3/8/09 8:00	-0.6
3/8/09 10:00	-0.7
3/8/09 12:00	-2.0
3/8/09 14:00	-3.8
3/8/09 16:00	-5.8
3/8/09 18:00	-6.2
3/8/09 20:00	-7.3
3/8/09 22:00	-4.3
3/9/09 0:00	0.3
3/9/09 2:00	3.7
3/9/09 4:00	3.3
3/9/09 6:00	2.7
3/9/09 8:00	0.4
3/9/09 10:00	-1.8
3/9/09 12:00	-1.6
3/9/09 14:00	-3.5
3/9/09 16:00	-5.5
3/9/09 18:00	-6.5
3/9/09 20:00	-6.4
3/9/09 22:00	-3.1
3/10/09 0:00	-2.5
3/10/09 2:00	2.6
3/10/09 4:00	2.0
3/10/09 6:00	-0.7
3/10/09 8:00	-2.0
3/10/09 10:00	-3.3
3/10/09 12:00	-4.2
3/10/09 14:00	-3.6
3/10/09 16:00	-3.0
3/10/09 18:00	-3.7
3/10/09 20:00	-3.5

Date	Temp (°C)
3/10/09 22:00	-3.8
3/11/09 0:00	-2.3
3/11/09 2:00	0.1
3/11/09 4:00	2.3
3/11/09 6:00	-0.5
3/11/09 8:00	-2.7
3/11/09 10:00	-3.3
3/11/09 12:00	-3.4
3/11/09 14:00	-4.0
3/11/09 16:00	-4.4
3/11/09 18:00	-4.2
3/11/09 20:00	-4.3
3/11/09 22:00	-4.3
3/12/09 0:00	-2.3
3/12/09 2:00	0.0
3/12/09 4:00	1.6
3/12/09 6:00	2.0
3/12/09 8:00	1.7
3/12/09 10:00	-2.8
3/12/09 12:00	-3.8
3/12/09 14:00	-5.0
3/12/09 16:00	-6.1
3/12/09 18:00	-8.1
3/12/09 20:00	-9.0
3/12/09 22:00	-9.8
3/13/09 0:00	-2.7
3/13/09 2:00	1.9
3/13/09 4:00	5.0
3/13/09 6:00	4.8
3/13/09 8:00	3.5
3/13/09 10:00	-2.0
3/13/09 12:00	-3.1
3/13/09 14:00	-4.0
3/13/09 16:00	-5.7
3/13/09 18:00	-6.5
3/13/09 20:00	-7.3
3/13/09 22:00	-7.3

Date	Temp (°C)
3/14/09 0:00	-2.2
3/14/09 2:00	3.9
3/14/09 4:00	7.4
3/14/09 6:00	9.6
3/14/09 8:00	8.5
3/14/09 10:00	1.8
3/14/09 12:00	3.2
3/14/09 14:00	4.1
3/14/09 16:00	3.3
3/14/09 18:00	1.7
3/14/09 20:00	1.7
3/14/09 22:00	2.2
3/15/09 0:00	3.2
3/15/09 2:00	2.9
3/15/09 4:00	3.9
3/15/09 6:00	3.2
3/15/09 8:00	1.9
3/15/09 10:00	0.2
3/15/09 12:00	0.0
3/15/09 14:00	0.0
3/15/09 16:00	-0.1
3/15/09 18:00	-0.1
3/15/09 20:00	-0.1
3/15/09 22:00	-0.1
3/16/09 0:00	0.7
3/16/09 2:00	1.2
3/16/09 4:00	4.0
3/16/09 6:00	5.0
3/16/09 8:00	1.5
3/16/09 10:00	0.3
3/16/09 12:00	0.0
3/16/09 14:00	-1.4
3/16/09 16:00	-1.2
3/16/09 18:00	-0.9
3/16/09 20:00	-0.9
3/16/09 22:00	-0.3
3/17/09 0:00	0.3

Table 5 continued

Date	Temp (°C)
3/17/09 2:00	1.2
3/17/09 4:00	1.0
3/17/09 6:00	2.5
3/17/09 8:00	1.0
3/17/09 10:00	0.5
3/17/09 12:00	0.0
3/17/09 14:00	-0.1
3/17/09 16:00	0.0
3/17/09 18:00	-0.1
3/17/09 20:00	-0.1
3/17/09 22:00	0.0
3/18/09 0:00	1.5
3/18/09 2:00	4.8
3/18/09 4:00	5.2
3/18/09 6:00	4.3
3/18/09 8:00	3.3
3/18/09 10:00	1.6
3/18/09 12:00	0.5
3/18/09 14:00	-0.2
3/18/09 16:00	-0.8
3/18/09 18:00	-0.4
3/18/09 20:00	-0.4
3/18/09 22:00	0.1
3/19/09 0:00	2.7
3/19/09 2:00	8.7
3/19/09 4:00	9.3
3/19/09 6:00	9.2
3/19/09 8:00	7.9
3/19/09 10:00	1.8
3/19/09 12:00	0.0
3/19/09 14:00	0.8
3/19/09 16:00	1.3
3/19/09 18:00	1.3
3/19/09 20:00	1.1
3/19/09 22:00	1.7
3/20/09 0:00	4.3
3/20/09 2:00	8.0

Date	Temp (°C)
3/20/09 4:00	9.3
3/20/09 6:00	10.3
3/20/09 8:00	9.1
3/20/09 10:00	4.1
3/20/09 12:00	4.2
3/20/09 14:00	3.6
3/20/09 16:00	3.2
3/20/09 18:00	3.2
3/20/09 20:00	2.8
3/20/09 22:00	2.9
3/21/09 0:00	5.2
3/21/09 2:00	11.0
3/21/09 4:00	12.2
3/21/09 6:00	9.1
3/21/09 8:00	6.6
3/21/09 10:00	3.8
3/21/09 12:00	3.5
3/21/09 14:00	1.7
3/21/09 16:00	1.1
3/21/09 18:00	0.2
3/21/09 20:00	-0.1
3/21/09 22:00	0.7
3/22/09 0:00	5.6
3/22/09 2:00	9.6
3/22/09 4:00	11.1
3/22/09 6:00	7.4
3/22/09 8:00	7.8
3/22/09 10:00	3.6
3/22/09 12:00	0.3
3/22/09 14:00	0.9
3/22/09 16:00	0.3
3/22/09 18:00	-0.3
3/22/09 20:00	-0.4
3/22/09 22:00	-1.1
3/23/09 0:00	5.8
3/23/09 2:00	7.5
3/23/09 4:00	7.4

Date	Temp (°C)
3/23/09 6:00	4.7
3/23/09 8:00	3.6
3/23/09 10:00	1.3
3/23/09 12:00	1.2
3/23/09 14:00	-1.2
3/23/09 16:00	1.0
3/23/09 18:00	-0.6
3/23/09 20:00	-1.6
3/23/09 22:00	0.9
3/24/09 0:00	3.0
3/24/09 2:00	3.4
3/24/09 4:00	3.7
3/24/09 6:00	2.4
3/24/09 8:00	2.3
3/24/09 10:00	1.0
3/24/09 12:00	0.6
3/24/09 14:00	0.6
3/24/09 16:00	0.2
3/24/09 18:00	-0.4
3/24/09 20:00	-0.8
3/24/09 22:00	2.3
3/25/09 0:00	6.2
3/25/09 2:00	7.5
3/25/09 4:00	7.7
3/25/09 6:00	7.3
3/25/09 8:00	6.5
3/25/09 10:00	4.9
3/25/09 12:00	4.2
3/25/09 14:00	3.5
3/25/09 16:00	3.1
3/25/09 18:00	3.3
3/25/09 20:00	2.9
3/25/09 22:00	3.3
3/26/09 0:00	5.3
3/26/09 2:00	5.6
3/26/09 4:00	6.1
3/26/09 6:00	6.5

Table 5 continued

Date	Temp (°C)
3/26/09 8:00	5.9
3/26/09 10:00	4.1
3/26/09 12:00	0.9
3/26/09 14:00	-1.8
3/26/09 16:00	-2.8
3/26/09 18:00	-3.3
3/26/09 20:00	-3.7
3/26/09 22:00	-3.0
3/27/09 0:00	4.6
3/27/09 2:00	7.3
3/27/09 4:00	8.7
3/27/09 6:00	9.2
3/27/09 8:00	8.1
3/27/09 10:00	2.4
3/27/09 12:00	2.7
3/27/09 14:00	-0.9
3/27/09 16:00	-1.7
3/27/09 18:00	-1.8
3/27/09 20:00	-2.7
3/27/09 22:00	-0.8
3/28/09 0:00	6.5
3/28/09 2:00	9.0
3/28/09 4:00	9.4
3/28/09 6:00	10.2
3/28/09 8:00	7.8
3/28/09 10:00	6.1
3/28/09 12:00	6.1
3/28/09 14:00	6.2
3/28/09 16:00	5.3
3/28/09 18:00	5.3
3/28/09 20:00	3.6
3/28/09 22:00	4.0
3/29/09 0:00	2.7
3/29/09 2:00	3.4
3/29/09 4:00	3.0
3/29/09 6:00	4.4
3/29/09 8:00	4.0

Date	Temp (°C)
3/29/09 10:00	2.7
3/29/09 12:00	1.1
3/29/09 14:00	0.5
3/29/09 16:00	-0.6
3/29/09 18:00	-0.4
3/29/09 20:00	-0.4
3/29/09 22:00	0.9
3/30/09 0:00	3.0
3/30/09 2:00	5.9
3/30/09 4:00	6.9
3/30/09 6:00	6.2
3/30/09 8:00	5.7
3/30/09 10:00	0.1
3/30/09 12:00	-1.9
3/30/09 14:00	-2.9
3/30/09 16:00	-3.6
3/30/09 18:00	-3.4
3/30/09 20:00	-3.7
3/30/09 22:00	-2.5
3/31/09 0:00	2.7
3/31/09 2:00	5.4
3/31/09 4:00	7.0
3/31/09 6:00	5.9
3/31/09 8:00	4.2
3/31/09 10:00	3.3
3/31/09 12:00	2.2
3/31/09 14:00	2.9
3/31/09 16:00	1.7
3/31/09 18:00	3.8
3/31/09 20:00	2.4
3/31/09 22:00	1.8
4/1/09 0:00	3.0
4/1/09 2:00	5.2
4/1/09 4:00	3.5
4/1/09 6:00	3.6
4/1/09 8:00	3.3
4/1/09 10:00	1.2

Date	Temp (°C)
4/1/09 12:00	1.3
4/1/09 14:00	-1.3
4/1/09 16:00	-0.1
4/1/09 18:00	-0.3
4/1/09 20:00	-0.1
4/1/09 22:00	0.2
4/2/09 0:00	0.1
4/2/09 2:00	1.0
4/2/09 4:00	1.0
4/2/09 6:00	1.9
4/2/09 8:00	3.7
4/2/09 10:00	2.7
4/2/09 12:00	3.3
4/2/09 14:00	3.4
4/2/09 16:00	3.9
4/2/09 18:00	1.9
4/2/09 20:00	2.9
4/2/09 22:00	2.1
4/3/09 0:00	5.2
4/3/09 2:00	6.8
4/3/09 4:00	7.2
4/3/09 6:00	5.8
4/3/09 8:00	3.3
4/3/09 10:00	2.2
4/3/09 12:00	1.2
4/3/09 14:00	0.6
4/3/09 16:00	0.1
4/3/09 18:00	0.4
4/3/09 20:00	-0.7
4/3/09 22:00	-0.5
4/4/09 0:00	2.5
4/4/09 2:00	4.7
4/4/09 4:00	6.9
4/4/09 6:00	5.8
4/4/09 8:00	4.7
4/4/09 10:00	2.6
4/4/09 12:00	-1.4

Table 5 continued

Date	Temp (°C)
4/4/09 14:00	-2.9
4/4/09 16:00	-3.5
4/4/09 18:00	-4.1
4/4/09 20:00	-4.9
4/4/09 22:00	-4.2
4/5/09 0:00	3.3
4/5/09 2:00	8.8
4/5/09 4:00	12.9
4/5/09 6:00	11.6
4/5/09 8:00	10.2
4/5/09 10:00	5.8
4/5/09 12:00	4.3
4/5/09 14:00	4.9
4/5/09 16:00	4.3
4/5/09 18:00	5.8
4/5/09 20:00	3.5
4/5/09 22:00	2.3
4/6/09 0:00	10.1
4/6/09 2:00	13.8
4/6/09 4:00	15.1
4/6/09 6:00	16.3
4/6/09 8:00	15.9
4/6/09 10:00	13.2
4/6/09 12:00	7.4
4/6/09 14:00	5.6
4/6/09 16:00	2.2
4/6/09 18:00	0.6
4/6/09 20:00	-0.6
4/6/09 22:00	-1.1
4/7/09 0:00	4.0
4/7/09 2:00	12.9
4/7/09 4:00	17.7
4/7/09 6:00	20.1
4/7/09 8:00	19.3
4/7/09 10:00	13.8

Appendix D: Table 1 2008 Northwest Trek Early Rearing Interval, Black River (collected 3/8/2008)

Date	B1 Max Temp	B1 Min Temp	B1 Alive	B1 Dead	B2 Max Temp	B2 Min Temp	B2 Alive	B2 Dead	B3 Max Temp	B3 Min Temp	B3 Alive	B3 Dead
3/8/2008	10.4	7.3	22	0	10.4	7.3	52	0	10.4	7.3	23	0
3/9/2008	12.2	5.4	22	0	12.2	5.4	52	0	12.2	5.4	23	0
3/10/2008	12.6	8.6	22	0	12.6	8.6	52	0	12.6	8.6	23	0
3/11/2008	13.9	7.9	22	0	13.9	7.9	52	0	13.9	7.9	23	0
3/12/2008	10.1	4	22	0	10.1	4	52	0	10.1	4	23	0
3/13/2008	11.5	7.2	22	0	11.5	7.2	52	0	11.5	7.2	23	0
3/14/2008	11.5	6.6	22	0	11.5	6.6	52	0	11.5	6.6	23	0
3/15/2008	9.7	6.2	22	0	9.7	6.2	52	0	9.7	6.2	23	0
3/16/2008	10.9	6	21	1	10.9	6	51	1	10.9	6	23	0
3/17/2008	9.8	6.2	21	0	9.8	6.2	51	0	9.8	6.2	23	0
3/18/2008	11.1	6.9	20	1	11.1	6.9	51	0	11.1	6.9	23	0
3/19/2008	10.7	4.8	20	0	10.7	4.8	51	0	10.7	4.8	23	0
3/20/2008	11.2	5.5	20	0	11.2	5.5	51	0	11.2	5.5	23	0
3/21/2008	11.2	5	20	0	11.2	5	51	0	11.2	5	23	0
3/22/2008	9.6	8.4	20	0	9.6	8.4	51	0	9.6	8.4	23	0
3/23/2008	12.1	3.4	20	0	12.1	3.4	51	0	12.1	3.4	23	0
3/24/2008	11.5	4	20	0	11.5	4	51	0	11.5	4	23	0
3/25/2008	11.7	3	20	0	11.7	3	51	0	11.7	3	23	0
3/26/2008	9.4	5.6	20	0	9.4	5.6	51	0	9.4	5.6	23	0
3/27/2008	9	4.1	20	0	9	4.1	49	2	9	4.1	23	0
3/28/2008	7.6	3.9	20	0	7.6	3.9	49	0	7.6	3.9	22	1
3/29/2008	7.3	3.8	20	0	7.3	3.8	49	0	7.3	3.8	22	0
3/30/2008	8.5	2.9	20	0	8.5	2.9	49	0	8.5	2.9	22	0
3/31/2008	11.1	4.2	20	0	11.1	4.2	49	0	11.1	4.2	22	0
4/1/2008	10	2.9	20	0	10	2.9	49	0	10	2.9	22	0
4/2/2008	11.5	2.3	20	0	11.5	2.3	49	0	11.5	2.3	22	0
4/3/2008	10.3	1.3	20	0	10.3	1.3	49	0	10.3	1.3	22	0
4/4/2008	21.1	6.1	20	0	21.1	6.1	48	1	21.1	6.1	17	5
4/5/2008	9.2	4.9	20	0	9.2	4.9	48	0	9.2	4.9	17	0
4/6/2008	10.7	6.7	20	0	10.7	6.7	48	0	10.7	6.7	17	0
4/7/2008	11.5	6.2	20	0	11.5	6.2	48	0	11.5	6.2	17	0
4/8/2008	9.8	5.6	20	0	9.8	5.6	48	0	9.8	5.6	17	0
4/9/2008	11.2	5.1	20	0	11.2	5.1	48	0	11.2	5.1	17	0
4/10/2008	12.2	7.1	20	0	12.2	7.1	48	0	12.2	7.1	17	0

Table 1 continued

Date	B1 Max Temp	B1 Min Temp	B1 Alive	B1 Dead	B2 Max Temp	B2 Min Temp	B2 Alive	B2 Dead	B3 Max Temp	B3 Min Temp	B3 Alive	B3 Dead
4/11/2008	12.9	4.9	20	0	12.9	4.9	48	0	12.9	4.9	16	1
4/12/2008	16.2	6.8	20	0	16.2	6.8	48	0	16.2	6.8	16	0
4/13/2008	21.2	9.1	20	0	21.2	9.1	48	0	21.2	9.1	16	0
4/14/2008	14.5	7.5	20	0	14.5	7.5	48	0	14.5	7.5	16	0
4/15/2008	21.1	3.2	20	0	21.1	3.2	48	0	21.1	3.2	16	0
4/16/2008	9.1	5.5	20	0	9.1	5.5	48	0	9.1	5.5	16	0
4/17/2008	13.3	7.3	20	0	13.3	7.3	48	0	13.3	7.3	16	0
4/18/2008	19.7	4.2	20	0	19.7	4.2	48	0	19.7	4.2	16	0
4/19/2008	6.7	6.3	20	0	6.7	6.3	48	0	6.7	6.3	16	0
4/20/2008	9.8	3.7	20	0	9.8	3.7	48	0	9.8	3.7	16	0
4/21/2008	14.8	3.8	20	0	14.8	3.8	48	0	14.8	3.8	16	0
4/22/2008	15	7	20	0	15	7	48	0	15	7	15	1
4/23/2008	18.5	7	20	0	18.5	7	47	1	18.5	7	15	0
4/24/2008	18.3	7.6	20	0	18.3	7.6	47	0	18.3	7.6	15	0
4/25/2008	15.4	7	20	0	15.4	7	47	0	15.4	7	15	0
4/26/2008	18.9	5	20	0	18.9	5	47	0	18.9	5	15	0
4/27/2008	21.1	9	20	0	21.1	9	46	1	21.1	9	15	0
4/28/2008	19.8	10.2	20	0	19.8	10.2	45	1	19.8	10.2	15	0
4/29/2008	19.8	10.2	20	0	19.8	10.2	45	0	19.8	10.2	15	0
4/30/2008	17.8	6.3	20	0	17.8	6.3	45	0	17.8	6.3	15	0
5/1/2008	20.3	6.6	20	0	20.3	6.6	45	0	20.3	6.6	15	0
5/2/2008	22.3	7.3	20	0	22.3	7.3	45	0	22.3	7.3	15	0
5/3/2008	25.1	11.8	19	1	25.1	11.8	45	0	25.1	11.8	14	1
5/4/2008	22	11.5	19	0	22	11.5	45	0	22	11.5	14	0
5/5/2008	25.1	11.8	19	0	25.1	11.8	45	0	25.1	11.8	14	0
5/6/2008	25.6	12.3	18	1	25.6	12.3	43	2	25.6	12.3	14	0
5/7/2008	22	11.8	18	0	22	11.8	43	0	22	11.8	14	0
5/8/2008	22.1	10.8	18	0	22.1	10.8	43	0	22.1	10.8	14	0
5/9/2008	21.7	10.5	18	0	21.7	10.5	42	1	21.7	10.5	14	0
5/10/2008	24.1	12.6	18	0	24.1	12.6	41	1	24.1	12.6	14	0
5/11/2008	23.4	12	18	0	23.4	12	41	0	23.4	12	14	0
5/12/2008	18.4	15	18	0	18.4	15	41	0	18.4	15	14	0
5/13/2008	19.3	11.2	18	0	19.3	11.2	41	0	19.3	11.2	14	0

Table 1 continued

Date	B4 Max Temp	B4 Min Temp	B4 Alive	B4 Dead	B5 Max Temp	B5 Min Temp	B5 Alive	B5 Dead	B6 Max Temp	B6 Min Temp	B6 Alive	B6 Dead
3/8/2008	10.4	7.3	25	0	10.4	7.3	21	0	10.4	7.3	17	0
3/9/2008	12.2	5.4	25	0	12.2	5.4	21	0	12.2	5.4	17	0
3/10/2008	12.6	8.6	25	0	12.6	8.6	21	0	12.6	8.6	17	0
3/11/2008	13.9	7.9	25	0	13.9	7.9	21	0	13.9	7.9	17	0
3/12/2008	10.1	4	25	0	10.1	4	21	0	10.1	4	17	0
3/13/2008	11.5	7.2	25	0	11.5	7.2	21	0	11.5	7.2	17	0
3/14/2008	11.5	6.6	25	0	11.5	6.6	21	0	11.5	6.6	17	0
3/15/2008	9.7	6.2	25	0	9.7	6.2	21	0	9.7	6.2	17	0
3/16/2008	10.9	6	25	0	10.9	6	21	0	10.9	6	17	0
3/17/2008	9.8	6.2	25	0	9.8	6.2	21	0	9.8	6.2	17	0
3/18/2008	11.1	6.9	25	0	11.1	6.9	21	0	11.1	6.9	14	3
3/19/2008	10.7	4.8	25	0	10.7	4.8	21	0	10.7	4.8	14	0
3/20/2008	11.2	5.5	25	0	11.2	5.5	21	0	11.2	5.5	14	0
3/21/2008	11.2	5	25	0	11.2	5	21	0	11.2	5	14	0
3/22/2008	9.6	8.4	25	0	9.6	8.4	21	0	9.6	8.4	14	0
3/23/2008	12.1	3.4	25	0	12.1	3.4	21	0	12.1	3.4	14	0
3/24/2008	11.5	4	25	0	11.5	4	21	0	11.5	4	14	0
3/25/2008	11.7	3	25	0	11.7	3	21	0	11.7	3	14	0
3/26/2008	9.4	5.6	25	0	9.4	5.6	21	0	9.4	5.6	14	0
3/27/2008	9	4.1	25	0	9	4.1	21	0	9	4.1	14	0
3/28/2008	7.6	3.9	25	0	7.6	3.9	20	1	7.6	3.9	14	0
3/29/2008	7.3	3.8	25	0	7.3	3.8	20	0	7.3	3.8	14	0
3/30/2008	8.5	2.9	25	0	8.5	2.9	20	0	8.5	2.9	14	0
3/31/2008	11.1	4.2	25	0	11.1	4.2	20	0	11.1	4.2	14	0
4/1/2008	10	2.9	25	0	10	2.9	20	0	10	2.9	14	0
4/2/2008	11.5	2.3	25	0	11.5	2.3	20	0	11.5	2.3	14	0
4/3/2008	10.3	1.3	25	0	10.3	1.3	20	0	10.3	1.3	14	0
4/4/2008	21.1	6.1	25	0	21.1	6.1	20	0	21.1	6.1	14	0
4/5/2008	9.2	4.9	25	0	9.2	4.9	20	0	9.2	4.9	14	0
4/6/2008	10.7	6.7	25	0	10.7	6.7	20	0	10.7	6.7	14	0
4/7/2008	11.5	6.2	25	0	11.5	6.2	20	0	11.5	6.2	14	0
4/8/2008	9.8	5.6	25	0	9.8	5.6	20	0	9.8	5.6	14	0
4/9/2008	11.2	5.1	25	0	11.2	5.1	20	0	11.2	5.1	14	0
4/10/2008	12.2	7.1	25	0	12.2	7.1	20	0	12.2	7.1	14	0

Table 1 continued

Date	B4 Max Temp	B4 Min Temp	B4 Alive	B4 Dead	B5 Max Temp	B5 Min Temp	B5 Alive	B5 Dead	B6 Max Temp	B6 Min Temp	B6 Alive	B6 Dead
4/11/2008	12.9	4.9	25	0	12.9	4.9	20	0	12.9	4.9	14	0
4/12/2008	16.2	6.8	25	0	16.2	6.8	20	0	16.2	6.8	14	0
4/13/2008	21.2	9.1	25	0	21.2	9.1	20	0	21.2	9.1	14	0
4/14/2008	14.5	7.5	25	0	14.5	7.5	20	0	14.5	7.5	14	0
4/15/2008	21.1	3.2	25	0	21.1	3.2	20	0	21.1	3.2	14	0
4/16/2008	9.1	5.5	25	0	9.1	5.5	20	0	9.1	5.5	14	0
4/17/2008	13.3	7.3	25	0	13.3	7.3	20	0	13.3	7.3	14	0
4/18/2008	19.7	4.2	25	0	19.7	4.2	20	0	19.7	4.2	14	0
4/19/2008	6.7	6.3	25	0	6.7	6.3	20	0	6.7	6.3	14	0
4/20/2008	9.8	3.7	25	0	9.8	3.7	20	0	9.8	3.7	14	0
4/21/2008	14.8	3.8	25	0	14.8	3.8	20	0	14.8	3.8	13	1
4/22/2008	15	7	25	0	15	7	20	0	15	7	13	0
4/23/2008	18.5	7	25	0	18.5	7	20	0	18.5	7	13	0
4/24/2008	18.3	7.6	25	0	18.3	7.6	20	0	18.3	7.6	13	0
4/25/2008	15.4	7	25	0	15.4	7	20	0	15.4	7	13	0
4/26/2008	18.9	5	25	0	18.9	5	20	0	18.9	5	13	0
4/27/2008	21.1	9	25	0	21.1	9	20	0	21.1	9	13	0
4/28/2008	19.8	10.2	25	0	19.8	10.2	20	0	19.8	10.2	13	0
4/29/2008	19.8	10.2	25	0	19.8	10.2	20	0	19.8	10.2	13	0
4/30/2008	17.8	6.3	25	0	17.8	6.3	20	0	17.8	6.3	13	0
5/1/2008	20.3	6.6	25	0	20.3	6.6	20	0	20.3	6.6	13	0
5/2/2008	22.3	7.3	25	0	22.3	7.3	19	1	22.3	7.3	13	0
5/3/2008	25.1	11.8	25	0	25.1	11.8	18	1	25.1	11.8	13	0
5/4/2008	22	11.5	25	0	22	11.5	18	0	22	11.5	12	1
5/5/2008	25.1	11.8	25	0	25.1	11.8	18	0	25.1	11.8	12	0
5/6/2008	25.6	12.3	25	0	25.6	12.3	18	0	25.6	12.3	12	0
5/7/2008	22	11.8	25	0	22	11.8	18	0	22	11.8	12	0
5/8/2008	22.1	10.8	25	0	22.1	10.8	18	0	22.1	10.8	12	0
5/9/2008	21.7	10.5	25	0	21.7	10.5	18	0	21.7	10.5	12	0
5/10/2008	24.1	12.6	25	0	24.1	12.6	18	0	24.1	12.6	12	0
5/11/2008	23.4	12	25	0	23.4	12	18	0	23.4	12	12	0
5/12/2008	18.4	15	25	0	18.4	15	18	0	18.4	15	12	0
5/13/2008	19.3	11.2	25	0	19.3	11.2	18	0	19.3	11.2	12	0

Table 1 continued

Date	B7 Max Temp	B7 Min Temp	B7 Alive	B7 Dead	B8 Max Temp	B8 Min Temp	B8 Alive	B8 Dead	B9 Max Temp	B9 Min Temp	B9 Alive	B9 Dead
3/8/2008	10.4	7.3	25	0	10.4	7.3	17	0	10.4	7.3	13	0
3/9/2008	12.2	5.4	25	0	12.2	5.4	17	0	12.2	5.4	13	0
3/10/2008	12.6	8.6	25	0	12.6	8.6	17	0	12.6	8.6	13	0
3/11/2008	13.9	7.9	25	0	13.9	7.9	17	0	13.9	7.9	13	0
3/12/2008	10.1	4	25	0	10.1	4	17	0	10.1	4	13	0
3/13/2008	11.5	7.2	25	0	11.5	7.2	17	0	11.5	7.2	13	0
3/14/2008	11.5	6.6	25	0	11.5	6.6	17	0	11.5	6.6	13	0
3/15/2008	9.7	6.2	25	0	9.7	6.2	17	0	9.7	6.2	13	0
3/16/2008	10.9	6	25	0	10.9	6	15	2	10.9	6	12	1
3/17/2008	9.8	6.2	25	0	9.8	6.2	15	0	9.8	6.2	12	0
3/18/2008	11.1	6.9	25	0	11.1	6.9	15	0	11.1	6.9	12	0
3/19/2008	10.7	4.8	25	0	10.7	4.8	15	0	10.7	4.8	12	0
3/20/2008	11.2	5.5	25	0	11.2	5.5	15	0	11.2	5.5	12	0
3/21/2008	11.2	5	25	0	11.2	5	15	0	11.2	5	12	0
3/22/2008	9.6	8.4	25	0	9.6	8.4	15	0	9.6	8.4	12	0
3/23/2008	12.1	3.4	25	0	12.1	3.4	15	0	12.1	3.4	12	0
3/24/2008	11.5	4	25	0	11.5	4	15	0	11.5	4	12	0
3/25/2008	11.7	3	25	0	11.7	3	15	0	11.7	3	12	0
3/26/2008	9.4	5.6	25	0	9.4	5.6	15	0	9.4	5.6	12	0
3/27/2008	9	4.1	25	0	9	4.1	15	0	9	4.1	12	0
3/28/2008	7.6	3.9	25	0	7.6	3.9	15	0	7.6	3.9	12	0
3/29/2008	7.3	3.8	25	0	7.3	3.8	15	0	7.3	3.8	12	0
3/30/2008	8.5	2.9	25	0	8.5	2.9	15	0	8.5	2.9	12	0
3/31/2008	11.1	4.2	25	0	11.1	4.2	15	0	11.1	4.2	12	0
4/1/2008	10	2.9	25	0	10	2.9	15	0	10	2.9	12	0
4/2/2008	11.5	2.3	25	0	11.5	2.3	15	0	11.5	2.3	12	0
4/3/2008	10.3	1.3	25	0	10.3	1.3	15	0	10.3	1.3	12	0
4/4/2008	21.1	6.1	25	0	21.1	6.1	15	0	21.1	6.1	12	0
4/5/2008	9.2	4.9	25	0	9.2	4.9	12	3	9.2	4.9	12	0
4/6/2008	10.7	6.7	25	0	10.7	6.7	12	0	10.7	6.7	12	0
4/7/2008	11.5	6.2	25	0	11.5	6.2	12	0	11.5	6.2	12	0
4/8/2008	9.8	5.6	25	0	9.8	5.6	12	0	9.8	5.6	12	0
4/9/2008	11.2	5.1	25	0	11.2	5.1	12	0	11.2	5.1	12	0
4/10/2008	12.2	7.1	25	0	12.2	7.1	11	1	12.2	7.1	12	0

Table 1 continued

Date	B7 Max Temp	B7 Min Temp	B7 Alive	B7 Dead	B8 Max Temp	B8 Min Temp	B8 Alive	B8 Dead	B9 Max Temp	B9 Min Temp	B9 Alive	B9 Dead
4/11/2008	12.9	4.9	25	0	12.9	4.9	11	0	12.9	4.9	9	3
4/12/2008	16.2	6.8	25	0	16.2	6.8	11	0	16.2	6.8	6	3
4/13/2008	21.2	9.1	24	1	21.2	9.1	11	0	21.2	9.1	6	0
4/14/2008	14.5	7.5	24	0	14.5	7.5	11	0	14.5	7.5	6	0
4/15/2008	21.1	3.2	24	0	21.1	3.2	11	0	21.1	3.2	5	1
4/16/2008	9.1	5.5	24	0	9.1	5.5	11	0	9.1	5.5	4	1
4/17/2008	13.3	7.3	24	0	13.3	7.3	11	0	13.3	7.3	4	0
4/18/2008	19.7	4.2	24	0	12.5	5.9	11	0	12.5	5.9	4	0
4/19/2008	6.7	6.3	24	0	7.2	3.5	11	0	7.2	3.5	4	0
4/20/2008	9.8	3.7	24	0	9.8	3.7	11	0	9.8	3.7	4	0
4/21/2008	14.8	3.8	23	1	14.8	3.8	10	1	14.8	3.8	4	0
4/22/2008	15	7	23	0	17.4	5.5	10	0	17.4	5.5	4	0
4/23/2008	18.5	7	23	0	18.4	6.8	10	0	18.4	6.8	4	0
4/24/2008	18.3	7.6	23	0	18.1	7.5	10	0	18.1	7.5	4	0
4/25/2008	15.4	7	23	0	15.9	6.8	8	2	15.9	6.8	4	0
4/26/2008	18.9	5	23	0	19.1	4.9	8	0	19.1	4.9	4	0
4/27/2008	21.1	9	23	0	18.8	16.5	8	0	18.8	16.5	4	0
4/28/2008	19.8	10.2	23	0	18.8	16.5	7	1	18.8	16.5	4	0
4/29/2008	19.8	10.2	23	0	19.5	8	6	1	19.5	8	4	0
4/30/2008	17.8	6.3	23	0	17.9	6.3	6	0	17.9	6.3	4	0
5/1/2008	20.3	6.6	23	0	20.7	6.4	6	0	20.7	6.4	4	0
5/2/2008	22.3	7.3	23	0	21.3	9.5	5	1	21.3	9.5	4	0
5/3/2008	25.1	11.8	23	0	25.5	11.8	5	0	25.5	11.8	4	0
5/4/2008	22	11.5	23	0	22.3	10.8	5	0	22.3	10.8	4	0
5/5/2008	25.1	11.8	23	0	24.8	11.5	5	0	24.8	11.5	4	0
5/6/2008	25.6	12.3	23	0	25.5	12.2	5	0	25.5	12.2	4	0
5/7/2008	22	11.8	23	0	22.4	11.5	5	0	22.4	11.5	4	0
5/8/2008	22.1	10.8	23	0	22.8	10.3	5	0	22.8	10.3	4	0
5/9/2008	21.7	10.5	23	0	21.9	10	5	0	21.9	10	4	0
5/10/2008	24.1	12.6	23	0	25	12	5	0	25	12	4	0
5/11/2008	23.4	12	23	0	23.1	12	5	0	23.1	12	4	0
5/12/2008	18.4	15	23	0	20.1	10.9	5	0	20.1	10.9	4	0
5/13/2008	19.3	11.2	23	0	19.6	11.2	5	0	19.6	11.2	4	0

Table 1 continued

Date	B10 Max Temp	B10 Min Temp	B10 Alive	B10 Dead	B11 Max Temp	B11 Min Temp	B11 Alive	B11 Dead	B12 Max Temp	B12 Min Temp	B12 Alive	B12 Dead
3/8/2008	10.4	7.3	25	0	10.4	7.3	43	0	10.4	7.3	43	0
3/9/2008	12.2	5.4	25	0	12.2	5.4	43	0	12.2	5.4	43	0
3/10/2008	12.6	8.6	25	0	12.6	8.6	43	0	12.6	8.6	43	0
3/11/2008	13.9	7.9	25	0	13.9	7.9	43	0	13.9	7.9	43	0
3/12/2008	10.1	4	25	0	10.1	4	43	0	10.1	4	43	0
3/13/2008	11.5	7.2	25	0	11.5	7.2	43	0	11.5	7.2	43	0
3/14/2008	11.5	6.6	25	0	11.5	6.6	43	0	11.5	6.6	43	0
3/15/2008	9.7	6.2	25	0	9.7	6.2	43	0	9.7	6.2	43	0
3/16/2008	10.9	6	25	0	10.9	6	43	0	10.9	6	43	0
3/17/2008	9.8	6.2	25	0	9.8	6.2	43	0	9.8	6.2	43	0
3/18/2008	11.1	6.9	25	0	11.1	6.9	42	1	11.1	6.9	42	1
3/19/2008	10.7	4.8	25	0	10.7	4.8	42	0	10.7	4.8	42	0
3/20/2008	11.2	5.5	25	0	11.2	5.5	42	0	11.2	5.5	42	0
3/21/2008	11.2	5	25	0	11.2	5	42	0	11.2	5	42	0
3/22/2008	9.6	8.4	25	0	9.6	8.4	42	0	9.6	8.4	42	0
3/23/2008	12.1	3.4	25	0	12.1	3.4	42	0	12.1	3.4	42	0
3/24/2008	11.5	4	25	0	11.5	4	42	0	11.5	4	42	0
3/25/2008	11.7	3	25	0	11.7	3	42	0	11.7	3	42	0
3/26/2008	9.4	5.6	25	0	9.4	5.6	42	0	9.4	5.6	42	0
3/27/2008	9	4.1	25	0	9	4.1	42	0	9	4.1	42	0
3/28/2008	7.6	3.9	25	0	7.6	3.9	42	0	7.6	3.9	42	0
3/29/2008	7.3	3.8	25	0	7.3	3.8	42	0	7.3	3.8	42	0
3/30/2008	8.5	2.9	25	0	8.5	2.9	42	0	8.5	2.9	42	0
3/31/2008	11.1	4.2	25	0	11.1	4.2	42	0	11.1	4.2	42	0
4/1/2008	10	2.9	25	0	10	2.9	42	0	10	2.9	42	0
4/2/2008	11.5	2.3	25	0	11.5	2.3	42	0	11.5	2.3	42	0
4/3/2008	10.3	1.3	25	0	10.3	1.3	42	0	10.3	1.3	42	0
4/4/2008	21.1	6.1	25	0	21.1	6.1	42	0	21.1	6.1	42	0
4/5/2008	9.2	4.9	25	0	9.2	4.9	42	0	9.2	4.9	42	0
4/6/2008	10.7	6.7	25	0	10.7	6.7	42	0	10.7	6.7	42	0
4/7/2008	11.5	6.2	25	0	11.5	6.2	42	0	11.5	6.2	42	0
4/8/2008	9.8	5.6	25	0	9.8	5.6	42	0	9.8	5.6	42	0
4/9/2008	11.2	5.1	25	0	11.2	5.1	42	0	11.2	5.1	42	0
4/10/2008	12.2	7.1	25	0	12.2	7.1	40	2	12.2	7.1	42	0

Table 1 continued

Date	B10 Max Temp	B10 Min Temp	B10 Alive	B10 Dead	B11 Max Temp	B11 Min Temp	B11 Alive	B11 Dead	B12 Max Temp	B12 Min Temp	B12 Alive	B12 Dead
4/11/2008	12.9	4.9	25	0	12.9	4.9	40	0	12.9	4.9	42	0
4/12/2008	16.2	6.8	25	0	16.2	6.8	40	0	16.2	6.8	42	0
4/13/2008	21.2	9.1	25	0	21.2	9.1	40	0	21.2	9.1	42	0
4/14/2008	14.5	7.5	25	0	14.5	7.5	40	0	14.5	7.5	42	0
4/15/2008	21.1	3.2	25	0	21.1	3.2	40	0	21.1	3.2	42	0
4/16/2008	9.1	5.5	25	0	9.1	5.5	40	0	9.1	5.5	42	0
4/17/2008	13.3	7.3	25	0	13.3	7.3	40	0	13.3	7.3	42	0
4/18/2008	12.5	5.9	25	0	12.5	5.9	40	0	12.5	5.9	42	0
4/19/2008	7.2	3.5	25	0	7.2	3.5	40	0	7.2	3.5	42	0
4/20/2008	9.8	3.7	25	0	9.8	3.7	40	0	9.8	3.7	42	0
4/21/2008	14.8	3.8	25	0	14.8	3.8	40	0	14.8	3.8	42	0
4/22/2008	17.4	5.5	25	0	17.4	5.5	40	0	17.4	5.5	41	1
4/23/2008	18.4	6.8	24	1	18.4	6.8	40	0	18.4	6.8	41	0
4/24/2008	18.1	7.5	24	0	18.1	7.5	40	0	18.1	7.5	41	0
4/25/2008	15.9	6.8	24	0	15.9	6.8	40	0	15.9	6.8	41	0
4/26/2008	19.1	4.9	24	0	19.1	4.9	40	0	19.1	4.9	41	0
4/27/2008	18.8	16.5	23	1	18.8	16.5	40	0	18.8	16.5	40	1
4/28/2008	18.8	16.5	23	0	18.8	16.5	40	0	18.8	16.5	40	0
4/29/2008	19.5	8	23	0	19.5	8	40	0	19.5	8	40	0
4/30/2008	17.9	6.3	22	1	17.9	6.3	40	0	17.9	6.3	40	0
5/1/2008	20.7	6.4	22	0	20.7	6.4	40	0	20.7	6.4	38	2
5/2/2008	21.3	9.5	22	0	21.3	9.5	40	0	21.3	9.5	37	1
5/3/2008	25.5	11.8	20	2	25.5	11.8	38	2	25.5	11.8	33	4
5/4/2008	22.3	10.8	20	0	22.3	10.8	38	0	22.3	10.8	33	0
5/5/2008	24.8	11.5	20	0	24.8	11.5	38	0	24.8	11.5	33	0
5/6/2008	25.5	12.2	20	0	25.5	12.2	38	0	25.5	12.2	33	0
5/7/2008	22.4	11.5	20	0	22.4	11.5	38	0	22.4	11.5	33	0
5/8/2008	22.8	10.3	20	0	22.8	10.3	38	0	22.8	10.3	33	0
5/9/2008	21.9	10	20	0	21.9	10	38	0	21.9	10	33	0
5/10/2008	25	12	20	0	25	12	38	0	25	12	33	0
5/11/2008	23.1	12	20	0	23.1	12	38	0	23.1	12	33	0
5/12/2008	20.1	10.9	20	0	20.1	10.9	38	0	20.1	10.9	33	0
5/13/2008	19.6	11.2	20	0	19.6	11.2	38	0	19.6	11.2	33	0

Table 1 continued

Date	B13 Max Temp	B13 Min Temp	B13 Alive	B13 Dead	B14 Max Temp	B14 Min Temp	B14 Alive	B14 Dead
3/8/2008	10.4	7.3	33	0	10.4	7.3	20	0
3/9/2008	12.2	5.4	33	0	12.2	5.4	20	0
3/10/2008	12.6	8.6	33	0	12.6	8.6	20	0
3/11/2008	13.9	7.9	33	0	13.9	7.9	20	0
3/12/2008	10.1	4	33	0	10.1	4	20	0
3/13/2008	11.5	7.2	33	0	11.5	7.2	20	0
3/14/2008	11.5	6.6	33	0	11.5	6.6	20	0
3/15/2008	9.7	6.2	33	0	9.7	6.2	20	0
3/16/2008	10.9	6	32	1	10.9	6	19	1
3/17/2008	9.8	6.2	32	0	9.8	6.2	19	0
3/18/2008	11.1	6.9	32	0	11.1	6.9	19	0
3/19/2008	10.7	4.8	32	0	10.7	4.8	19	0
3/20/2008	11.2	5.5	32	0	11.2	5.5	19	0
3/21/2008	11.2	5	32	0	11.2	5	19	0
3/22/2008	9.6	8.4	32	0	9.6	8.4	19	0
3/23/2008	12.1	3.4	32	0	12.1	3.4	19	0
3/24/2008	11.5	4	32	0	11.5	4	19	0
3/25/2008	11.7	3	32	0	11.7	3	19	0
3/26/2008	9.4	5.6	32	0	9.4	5.6	19	0
3/27/2008	9	4.1	32	0	9	4.1	19	0
3/28/2008	7.6	3.9	32	0	7.6	3.9	19	0
3/29/2008	7.3	3.8	32	0	7.3	3.8	19	0
3/30/2008	8.5	2.9	32	0	8.5	2.9	19	0
3/31/2008	11.1	4.2	32	0	11.1	4.2	19	0
4/1/2008	10	2.9	32	0	10	2.9	19	0
4/2/2008	11.5	2.3	32	0	11.5	2.3	19	0
4/3/2008	10.3	1.3	32	0	10.3	1.3	19	0
4/4/2008	21.1	6.1	32	0	21.1	6.1	19	0
4/5/2008	9.2	4.9	32	0	9.2	4.9	19	0
4/6/2008	10.7	6.7	32	0	10.7	6.7	19	0
4/7/2008	11.5	6.2	32	0	11.5	6.2	19	0
4/8/2008	9.8	5.6	32	0	9.8	5.6	19	0
4/9/2008	11.2	5.1	32	0	11.2	5.1	19	0
4/10/2008	12.2	7.1	32	0	12.2	7.1	19	0

Table 1 continued

Date	B13 Max Temp	B13 Min Temp	B13 Alive	B13 Dead	B14 Max Temp	B14 Min Temp	B14 Alive	B14 Dead
4/11/2008	12.9	4.9	32	0	12.9	4.9	19	0
4/12/2008	16.2	6.8	27	5	16.2	6.8	19	0
4/13/2008	21.2	9.1	27	0	21.2	9.1	19	0
4/14/2008	14.5	7.5	26	1	14.5	7.5	19	0
4/15/2008	21.1	3.2	26	0	21.1	3.2	19	0
4/16/2008	9.1	5.5	26	0	9.1	5.5	19	0
4/17/2008	13.3	7.3	24	2	13.3	7.3	19	0
4/18/2008	12.5	5.9	23	1	12.5	5.9	19	0
4/19/2008	7.2	3.5	22	1	7.2	3.5	19	0
4/20/2008	9.8	3.7	22	0	9.8	3.7	19	0
4/21/2008	14.8	3.8	22	0	14.8	3.8	19	0
4/22/2008	17.4	5.5	22	0	17.4	5.5	17	2
4/23/2008	18.4	6.8	22	0	18.4	6.8	17	0
4/24/2008	18.1	7.5	22	0	18.1	7.5	17	0
4/25/2008	15.9	6.8	22	0	15.9	6.8	17	0
4/26/2008	19.1	4.9	22	0	19.1	4.9	17	0
4/27/2008	18.8	16.5	22	0	18.8	16.5	17	0
4/28/2008	18.8	16.5	22	0	18.8	16.5	17	0
4/29/2008	19.5	8	22	0	19.5	8	17	0
4/30/2008	17.9	6.3	21	1	17.9	6.3	17	0
5/1/2008	20.7	6.4	21	0	20.7	6.4	17	0
5/2/2008	21.3	9.5	21	0	21.3	9.5	17	0
5/3/2008	25.5	11.8	21	0	25.5	11.8	17	0
5/4/2008	22.3	10.8	21	0	22.3	10.8	17	0
5/5/2008	24.8	11.5	21	0	24.8	11.5	17	0
5/6/2008	25.5	12.2	21	0	25.5	12.2	17	0
5/7/2008	22.4	11.5	21	0	22.4	11.5	17	0
5/8/2008	22.8	10.3	21	0	22.8	10.3	17	0
5/9/2008	21.9	10	21	0	21.9	10	17	0
5/10/2008	25	12	21	0	25	12	17	0
5/11/2008	23.1	12	21	0	23.1	12	17	0
5/12/2008	20.1	10.9	21	0	20.1	10.9	17	0
5/13/2008	19.6	11.2	21	0	19.6	11.2	17	0

Table 2 2008 Northwest Trek Early Rearing Interval, Conboy Lake (collected 3/8/2008)

Date	C1 Max Temp	C1 Min Temp	C1 Alive	C1 Dead	C2 Max Temp	C2 Min Temp	C2 Alive	C2 Dead	C3 Max Temp	C3 Min Temp	C3 Alive	C3 Dead
3/8/2008	10.4	7.3	16	0	10.4	7.3	24	0	10.4	7.3	31	0
3/9/2008	12.2	5.4	16	0	12.2	5.4	24	0	12.2	5.4	31	0
3/10/2008	12.6	8.6	16	0	12.6	8.6	24	0	12.6	8.6	31	0
3/11/2008	13.9	7.9	16	0	13.9	7.9	24	0	13.9	7.9	31	0
3/12/2008	10.1	4	16	0	10.1	4	24	0	10.1	4	31	0
3/13/2008	11.5	7.2	16	0	11.5	7.2	24	0	11.5	7.2	30	1
3/14/2008	11.5	6.6	16	0	11.5	6.6	24	0	11.5	6.6	30	0
3/15/2008	9.7	6.2	16	0	9.7	6.2	24	0	9.7	6.2	30	0
3/16/2008	10.9	6	16	0	10.9	6	24	0	10.9	6	30	0
3/17/2008	9.8	6.2	16	0	9.8	6.2	24	0	9.8	6.2	30	0
3/18/2008	11.1	6.9	16	0	11.1	6.9	24	0	11.1	6.9	30	0
3/19/2008	10.7	4.8	16	0	10.7	4.8	24	0	10.7	4.8	30	0
3/20/2008	11.2	5.5	16	0	11.2	5.5	24	0	11.2	5.5	30	0
3/21/2008	11.2	5	16	0	11.2	5	24	0	11.2	5	30	0
3/22/2008	9.6	2.9	16	0	9.6	2.9	24	0	9.6	2.9	30	0
3/23/2008	12.1	3.4	16	0	12.1	3.4	24	0	12.1	3.4	30	0
3/24/2008	11.5	4	16	0	11.5	4	24	0	11.5	4	30	0
3/25/2008	11.7	3	16	0	11.7	3	24	0	11.7	3	30	0
3/26/2008	9.4	5.6	16	0	9.4	5.6	24	0	9.4	5.6	30	0
3/27/2008	9	4.1	16	0	9	4.1	24	0	9	4.1	30	0
3/28/2008	7.6	3.9	16	0	7.6	3.9	24	0	7.6	3.9	30	0
3/29/2008	7.3	3.8	16	0	7.3	3.8	24	0	7.3	3.8	30	0
3/30/2008	8.5	2.9	16	0	8.5	2.9	24	0	8.5	2.9	30	0
3/31/2008	11.1	4.2	16	0	11.1	4.2	23	1	11.1	4.2	30	0
4/1/2008	10	2.9	16	0	10	2.9	23	0	10	2.9	30	0
4/2/2008	11.5	2.3	16	0	11.5	2.3	22	1	11.5	2.3	30	0
4/3/2008	10	1.3	16	0	10	1.3	21	1	10	1.3	30	0
4/4/2008	21.1	6.1	16	0	21.1	6.1	19	2	21.1	6.1	30	0
4/5/2008	9.2	4.9	16	0	9.2	4.9	19	0	9.2	4.9	30	0
4/6/2008	10.7	6.7	16	0	10.7	6.7	19	0	10.7	6.7	30	0
4/7/2008	11.5	6.2	16	0	11.5	6.2	19	0	11.5	6.2	30	0
4/8/2008	9.8	5.6	16	0	9.8	5.6	14	5	9.8	5.6	30	0
4/9/2008	11.2	5.1	16	0	11.2	5.1	13	1	11.2	5.1	30	0
4/10/2008	12.2	7.1	16	0	12.2	7.1	11	2	12.2	7.1	30	0

Table 2 continued

Date	C1 Max Temp	C1 Min Temp	C1 Alive	C1 Dead	C2 Max Temp	C2 Min Temp	C2 Alive	C2 Dead	C3 Max Temp	C3 Min Temp	C3 Alive	C3 Dead
4/11/2008	12.9	4.9	16	0	12.9	4.9	11	0	12.9	4.9	30	0
4/12/2008	16.2	6.8	16	0	16.2	6.8	11	0	16.2	6.8	29	1
4/13/2008	21.2	9.1	16	0	21.2	9.1	11	0	21.2	9.1	29	0
4/14/2008	14.5	7.5	16	0	14.5	7.5	11	0	14.5	7.5	29	0
4/15/2008	21.1	3.2	16	0	21.1	3.2	11	0	21.1	3.2	29	0
4/16/2008	9.1	5.5	16	0	9.1	5.5	11	0	9.1	5.5	28	1
4/17/2008	13.3	7.3	16	0	13.3	7.3	11	0	13.3	7.3	28	0
4/18/2008	16.8	6.2	16	0	16.8	6.2	11	0	16.8	6.2	28	0
4/19/2008	6.9	4	16	0	6.9	4	11	0	6.9	4	28	0
4/20/2008	9.8	3.7	16	0	9.8	3.7	11	0	9.8	3.7	28	0
4/21/2008	14.8	3.8	16	0	14.8	3.8	11	0	14.8	3.8	28	0
4/22/2008	16.7	6.2	16	0	16.7	6.2	11	0	16.7	6.2	28	0
4/23/2008	16.9	6.2	16	0	16.9	6.2	11	0	16.9	6.2	28	0
4/24/2008	16.8	8	16	0	16.8	8	11	0	16.8	8	28	0
4/25/2008	15.2	7.3	16	0	15.2	7.3	11	0	15.2	7.3	28	0
4/26/2008	18.8	5.9	16	0	18.8	5.9	11	0	18.8	5.9	28	0
4/27/2008	18.1	16	15	1	18.1	16	11	0	18.1	16	28	0
4/28/2008	19.5	10.8	14	1	19.5	10.8	11	0	19.5	10.8	28	0
4/29/2008	19.1	9	14	0	19.1	9	11	0	19.1	9	28	0
4/30/2008	19.1	7	14	0	19.1	7	11	0	19.1	7	28	0
5/1/2008	18.1	7	13	1	18.1	7	11	0	18.1	7	28	0
5/2/2008	21.4	8.5	13	0	21.4	8.5	11	0	21.4	8.5	28	0
5/3/2008	26	12.5	13	0	26	12.5	11	0	26	12.5	28	0
5/4/2008	21.1	11.6	12	1	21.1	11.6	11	0	21.1	11.6	27	1
5/5/2008	24.1	12	12	0	24.1	12	11	0	24.1	12	26	1
5/6/2008	24.9	13	12	0	24.9	13	11	0	24.9	13	26	0
5/7/2008	22.1	12	12	0	22.1	12	11	0	22.1	12	26	0
5/8/2008	20.3	12.8	12	0	20.3	12.8	11	0	20.3	12.8	26	0
5/9/2008	19	18.6	12	0	19	18.6	11	0	19	18.6	26	0
5/10/2008	23.9	12.7	12	0	23.9	12.7	11	0	23.9	12.7	26	0
5/11/2008	23.1	12.3	12	0	23.1	12.3	11	0	23.1	12.3	26	0
5/12/2008	21.3	11.4	12	0	21.3	11.4	11	0	21.3	11.4	26	0
5/13/2008	17.2	11.3	12	0	17.2	11.3	11	0	17.2	11.3	26	0

Table 2 continued

Date	C4 Max Temp	C4 Min Temp	C4 Alive	C4 Dead	C5 Max Temp	C5 Min Temp	C5 Alive	C5 Dead	C6 Max Temp	C6 Min Temp	C6 Alive	C6 Dead
3/8/2008	10.4	7.3	29	0	10.4	7.3	31	0	10.4	7.3	36	0
3/9/2008	12.2	5.4	29	0	12.2	5.4	31	0	12.2	5.4	36	0
3/10/2008	12.6	8.6	29	0	12.6	8.6	31	0	12.6	8.6	36	0
3/11/2008	13.9	7.9	29	0	13.9	7.9	31	0	13.9	7.9	36	0
3/12/2008	10.1	4	29	0	10.1	4	31	0	10.1	4	36	0
3/13/2008	11.5	7.2	28	1	11.5	7.2	30	1	11.5	7.2	36	0
3/14/2008	11.5	6.6	28	0	11.5	6.6	30	0	11.5	6.6	36	0
3/15/2008	9.7	6.2	28	0	9.7	6.2	30	0	9.7	6.2	36	0
3/16/2008	10.9	6	28	0	10.9	6	30	0	10.9	6	36	0
3/17/2008	9.8	6.2	28	0	9.8	6.2	30	0	9.8	6.2	36	0
3/18/2008	11.1	6.9	28	0	11.1	6.9	30	0	11.1	6.9	34	2
3/19/2008	10.7	4.8	28	0	10.7	4.8	30	0	10.7	4.8	34	0
3/20/2008	11.2	5.5	28	0	11.2	5.5	30	0	11.2	5.5	34	0
3/21/2008	11.2	5	28	0	11.2	5	30	0	11.2	5	34	0
3/22/2008	9.6	2.9	28	0	9.6	2.9	30	0	9.6	2.9	34	0
3/23/2008	12.1	3.4	28	0	12.1	3.4	30	0	12.1	3.4	34	0
3/24/2008	11.5	4	28	0	11.5	4	30	0	11.5	4	34	0
3/25/2008	11.7	3	28	0	11.7	3	30	0	11.7	3	34	0
3/26/2008	9.4	5.6	28	0	9.4	5.6	30	0	9.4	5.6	34	0
3/27/2008	9	4.1	28	0	9	4.1	30	0	9	4.1	34	0
3/28/2008	7.6	3.9	27	1	7.6	3.9	30	0	7.6	3.9	34	0
3/29/2008	7.3	3.8	27	0	7.3	3.8	30	0	7.3	3.8	34	0
3/30/2008	8.5	2.9	27	0	8.5	2.9	30	0	8.5	2.9	34	0
3/31/2008	11.1	4.2	27	0	11.1	4.2	30	0	11.1	4.2	34	0
4/1/2008	10	2.9	27	0	10	2.9	30	0	10	2.9	34	0
4/2/2008	11.5	2.3	27	0	11.5	2.3	30	0	11.5	2.3	34	0
4/3/2008	10	1.3	27	0	10	1.3	30	0	10	1.3	33	1
4/4/2008	21.1	6.1	27	0	21.1	6.1	30	0	21.1	6.1	33	0
4/5/2008	9.2	4.9	27	0	9.2	4.9	30	0	9.2	4.9	33	0
4/6/2008	10.7	6.7	27	0	10.7	6.7	30	0	10.7	6.7	33	0
4/7/2008	11.5	6.2	27	0	11.5	6.2	30	0	11.5	6.2	33	0
4/8/2008	9.8	5.6	27	0	9.8	5.6	30	0	9.8	5.6	33	0
4/9/2008	11.2	5.1	27	0	11.2	5.1	30	0	11.2	5.1	29	4
4/10/2008	12.2	7.1	27	0	12.2	7.1	30	0	12.2	7.1	29	0

Table 2 continued

Date	C4 Max Temp	C4 Min Temp	C4 Alive	C4 Dead	C5 Max Temp	C5 Min Temp	C5 Alive	C5 Dead	C6 Max Temp	C6 Min Temp	C6 Alive	C6 Dead
4/11/2008	12.9	4.9	26	1	12.9	4.9	30	0	12.9	4.9	29	0
4/12/2008	16.2	6.8	26	0	16.2	6.8	30	0	16.2	6.8	29	0
4/13/2008	21.2	9.1	26	0	21.2	9.1	30	0	21.2	9.1	15	14
4/14/2008	14.5	7.5	26	0	14.5	7.5	30	0	14.5	7.5	15	0
4/15/2008	21.1	3.2	26	0	21.1	3.2	30	0	21.1	3.2	15	0
4/16/2008	9.1	5.5	26	0	9.1	5.5	30	0	9.1	5.5	14	1
4/17/2008	13.3	7.3	26	0	13.3	7.3	30	0	13.3	7.3	14	0
4/18/2008	16.8	6.2	26	0	16.8	6.2	30	0	16.8	6.2	14	0
4/19/2008	6.9	4	26	0	6.9	4	30	0	6.9	4	14	0
4/20/2008	9.8	3.7	26	0	9.8	3.7	30	0	9.8	3.7	14	0
4/21/2008	14.8	3.8	26	0	14.8	3.8	30	0	14.8	3.8	14	0
4/22/2008	16.7	6.2	26	0	16.7	6.2	30	0	16.7	6.2	14	0
4/23/2008	16.9	6.2	26	0	16.9	6.2	30	0	16.9	6.2	14	0
4/24/2008	16.8	8	26	0	16.8	8	30	0	16.8	8	14	0
4/25/2008	15.2	7.3	26	0	15.2	7.3	30	0	15.2	7.3	14	0
4/26/2008	18.8	5.9	26	0	18.8	5.9	30	0	18.8	5.9	14	0
4/27/2008	18.1	16	26	0	18.1	16	30	0	18.1	16	14	0
4/28/2008	19.5	10.8	26	0	19.5	10.8	30	0	19.5	10.8	14	0
4/29/2008	19.1	9	26	0	19.1	9	30	0	19.1	9	14	0
4/30/2008	19.1	7	26	0	19.1	7	30	0	19.1	7	14	0
5/1/2008	18.1	7	26	0	18.1	7	29	1	18.1	7	14	0
5/2/2008	21.4	8.5	25	1	21.4	8.5	29	0	21.4	8.5	14	0
5/3/2008	26	12.5	24	1	26	12.5	29	0	26	12.5	14	0
5/4/2008	21.1	11.6	24	0	21.1	11.6	29	0	21.1	11.6	14	0
5/5/2008	24.1	12	24	0	24.1	12	29	0	24.1	12	14	0
5/6/2008	24.9	13	24	0	24.9	13	29	0	24.9	13	14	0
5/7/2008	22.1	12	24	0	22.1	12	29	0	22.1	12	14	0
5/8/2008	20.3	12.8	24	0	20.3	12.8	29	0	20.3	12.8	14	0
5/9/2008	19	18.6	24	0	19	18.6	29	0	19	18.6	14	0
5/10/2008	23.9	12.7	24	0	23.9	12.7	29	0	23.9	12.7	14	0
5/11/2008	23.1	12.3	23	1	23.1	12.3	29	0	23.1	12.3	14	0
5/12/2008	21.3	11.4	23	0	21.3	11.4	29	0	21.3	11.4	14	0
5/13/2008	17.2	11.3	23	0	17.2	11.3	29	0	17.2	11.3	14	0

Table 2 continued

Date	C7 Max Temp	C7 Min Temp	C7 Alive	C7 Dead	C8 Max Temp	C8 Min Temp	C8 Alive	C8 Dead	C9 Max Temp	C9 Min Temp	C9 Alive	C9 Dead
3/8/2008	10.4	7.3	27	0	10.4	7.3	34	0	10.4	7.3	28	0
3/9/2008	12.2	5.4	27	0	12.2	5.4	34	0	12.2	5.4	28	0
3/10/2008	12.6	8.6	27	0	12.6	8.6	34	0	12.6	8.6	28	0
3/11/2008	13.9	7.9	27	0	13.9	7.9	34	0	13.9	7.9	28	0
3/12/2008	10.1	4	27	0	10.1	4	34	0	10.1	4	28	0
3/13/2008	11.5	7.2	27	0	11.5	7.2	34	0	11.5	7.2	27	1
3/14/2008	11.5	6.6	27	0	11.5	6.6	34	0	11.5	6.6	27	0
3/15/2008	9.7	6.2	27	0	9.7	6.2	34	0	9.7	6.2	27	0
3/16/2008	10.9	6	27	0	10.9	6	34	0	10.9	6	27	0
3/17/2008	9.8	6.2	27	0	9.8	6.2	34	0	9.8	6.2	27	0
3/18/2008	11.1	6.9	27	0	11.1	6.9	34	0	11.1	6.9	27	0
3/19/2008	10.7	4.8	27	0	10.7	4.8	34	0	10.7	4.8	27	0
3/20/2008	11.2	5.5	27	0	11.2	5.5	34	0	11.2	5.5	27	0
3/21/2008	11.2	5	27	0	11.2	5	34	0	11.2	5	27	0
3/22/2008	9.6	2.9	27	0	9.6	2.9	34	0	9.6	2.9	27	0
3/23/2008	12.1	3.4	27	0	12.1	3.4	34	0	12.1	3.4	27	0
3/24/2008	11.5	4	26	1	11.5	4	34	0	11.5	4	27	0
3/25/2008	11.7	3	26	0	11.7	3	34	0	11.7	3	27	0
3/26/2008	9.4	5.6	26	0	9.4	5.6	34	0	9.4	5.6	27	0
3/27/2008	9	4.1	26	0	9	4.1	34	0	9	4.1	27	0
3/28/2008	7.6	3.9	26	0	7.6	3.9	34	0	7.6	3.9	27	0
3/29/2008	7.3	3.8	26	0	7.3	3.8	34	0	7.3	3.8	27	0
3/30/2008	8.5	2.9	26	0	8.5	2.9	34	0	8.5	2.9	27	0
3/31/2008	11.1	4.2	26	0	11.1	4.2	34	0	11.1	4.2	27	0
4/1/2008	10	2.9	26	0	10	2.9	34	0	10	2.9	27	0
4/2/2008	11.5	2.3	23	3	11.5	2.3	34	0	11.5	2.3	27	0
4/3/2008	10	1.3	23	0	10	1.3	34	0	10	1.3	27	0
4/4/2008	21.1	6.1	23	0	21.1	6.1	34	0	21.1	6.1	27	0
4/5/2008	9.2	4.9	23	0	9.2	4.9	34	0	9.2	4.9	27	0
4/6/2008	10.7	6.7	23	0	10.7	6.7	34	0	10.7	6.7	27	0
4/7/2008	11.5	6.2	23	0	11.5	6.2	33	1	11.5	6.2	27	0
4/8/2008	9.8	5.6	23	0	9.8	5.6	33	0	9.8	5.6	27	0
4/9/2008	11.2	5.1	23	0	11.2	5.1	33	0	11.2	5.1	27	0
4/10/2008	12.2	7.1	23	0	12.2	7.1	33	0	12.2	7.1	27	0

Table 2 continued

Date	C7 Max Temp	C7 Min Temp	C7 Alive	C7 Dead	C8 Max Temp	C8 Min Temp	C8 Alive	C8 Dead	C9 Max Temp	C9 Min Temp	C9 Alive	C9 Dead
4/11/2008	12.9	4.9	23	0	12.9	4.9	33	0	12.9	4.9	27	0
4/12/2008	16.2	6.8	23	0	16.2	6.8	33	0	16.2	6.8	27	0
4/13/2008	21.2	9.1	23	0	21.2	9.1	33	0	21.2	9.1	27	0
4/14/2008	14.5	7.5	23	0	14.5	7.5	33	0	14.5	7.5	27	0
4/15/2008	21.1	3.2	23	0	21.1	3.2	33	0	21.1	3.2	27	0
4/16/2008	9.1	5.5	23	0	9.1	5.5	33	0	9.1	5.5	27	0
4/17/2008	13.3	7.3	23	0	13.3	7.3	33	0	13.3	7.3	27	0
4/18/2008	16.8	6.2	23	0	13.8	6	33	0	13.8	6	27	0
4/19/2008	6.9	4	23	0	7.4	3.9	33	0	7.4	3.9	27	0
4/20/2008	9.8	3.7	23	0	9.8	3.7	33	0	9.8	3.7	27	0
4/21/2008	14.8	3.8	23	0	14.8	3.8	33	0	14.8	3.8	27	0
4/22/2008	16.7	6.2	23	0	16.6	5.6	33	0	16.6	5.6	27	0
4/23/2008	16.9	6.2	22	1	18.6	7	33	0	18.6	7	26	1
4/24/2008	16.8	8	22	0	18.5	7.6	32	1	18.5	7.6	26	0
4/25/2008	15.2	7.3	22	0	16.1	7.2	32	0	16.1	7.2	26	0
4/26/2008	18.8	5.9	22	0	19.2	5.6	32	0	19.2	5.6	26	0
4/27/2008	18.1	16	22	0	21.5	9	32	0	21.5	9	25	1
4/28/2008	19.5	10.8	22	0	20.3	10.4	31	1	20.3	10.4	25	0
4/29/2008	19.1	9	22	0	20.3	10.4	29	2	20.3	10.4	25	0
4/30/2008	19.1	7	22	0	18.1	7	29	0	18.1	7	25	0
5/1/2008	18.1	7	22	0	18.1	6.9	29	0	18.1	6.9	25	0
5/2/2008	21.4	8.5	21	1	19.9	6.9	28	1	19.9	6.9	25	0
5/3/2008	26	12.5	21	0	23.6	13	28	0	23.6	13	25	0
5/4/2008	21.1	11.6	21	0	22.8	11.3	28	0	22.8	11.3	25	0
5/5/2008	24.1	12	21	0	24.8	11.7	27	1	24.8	11.7	25	0
5/6/2008	24.9	13	21	0	25.1	12.5	27	0	25.1	12.5	25	0
5/7/2008	22.1	12	21	0	21.5	11.6	27	0	21.5	11.6	25	0
5/8/2008	20.3	12.8	21	0	22.1	11	27	0	22.1	11	25	0
5/9/2008	19	18.6	21	0	22.3	9.7	27	0	22.3	9.7	25	0
5/10/2008	23.9	12.7	21	0	24.1	12.3	27	0	24.1	12.3	25	0
5/11/2008	23.1	12.3	20	1	23.2	11.8	27	0	23.2	11.8	25	0
5/12/2008	21.3	11.4	20	0	21.4	10.8	27	0	21.4	10.8	25	0
5/13/2008	17.2	11.3	20	0	16.9	11	27	0	16.9	11	25	0

Table 2 continued

Date	C10 Max Temp	C10 Min Temp	C10 Alive	C10 Dead	C11 Max Temp	C11 Min Temp	C11 Alive	C11 Dead	C12 Max Temp	C12 Min Temp	C12 Alive	C12 Dead
3/8/2008	10.4	7.3	20	0	10.4	7.3	33	0	10.4	7.3	35	0
3/9/2008	12.2	5.4	20	0	12.2	5.4	33	0	12.2	5.4	35	0
3/10/2008	12.6	8.6	20	0	12.6	8.6	33	0	12.6	8.6	35	0
3/11/2008	13.9	7.9	20	0	13.9	7.9	33	0	13.9	7.9	35	0
3/12/2008	10.1	4	20	0	10.1	4	33	0	10.1	4	35	0
3/13/2008	11.5	7.2	20	0	11.5	7.2	33	0	11.5	7.2	35	0
3/14/2008	11.5	6.6	20	0	11.5	6.6	33	0	11.5	6.6	35	0
3/15/2008	9.7	6.2	20	0	9.7	6.2	33	0	9.7	6.2	35	0
3/16/2008	10.9	6	20	0	10.9	6	33	0	10.9	6	35	0
3/17/2008	9.8	6.2	20	0	9.8	6.2	33	0	9.8	6.2	35	0
3/18/2008	11.1	6.9	20	0	11.1	6.9	33	0	11.1	6.9	35	0
3/19/2008	10.7	4.8	20	0	10.7	4.8	33	0	10.7	4.8	35	0
3/20/2008	11.2	5.5	20	0	11.2	5.5	33	0	11.2	5.5	35	0
3/21/2008	11.2	5	20	0	11.2	5	33	0	11.2	5	35	0
3/22/2008	9.6	2.9	20	0	9.6	2.9	33	0	9.6	2.9	35	0
3/23/2008	12.1	3.4	20	0	12.1	3.4	33	0	12.1	3.4	35	0
3/24/2008	11.5	4	20	0	11.5	4	33	0	11.5	4	35	0
3/25/2008	11.7	3	20	0	11.7	3	33	0	11.7	3	35	0
3/26/2008	9.4	5.6	20	0	9.4	5.6	33	0	9.4	5.6	35	0
3/27/2008	9	4.1	20	0	9	4.1	33	0	9	4.1	35	0
3/28/2008	7.6	3.9	20	0	7.6	3.9	33	0	7.6	3.9	35	0
3/29/2008	7.3	3.8	20	0	7.3	3.8	33	0	7.3	3.8	35	0
3/30/2008	8.5	2.9	20	0	8.5	2.9	33	0	8.5	2.9	35	0
3/31/2008	11.1	4.2	20	0	11.1	4.2	33	0	11.1	4.2	35	0
4/1/2008	10	2.9	20	0	10	2.9	33	0	10	2.9	35	0
4/2/2008	11.5	2.3	20	0	11.5	2.3	33	0	11.5	2.3	35	0
4/3/2008	10	1.3	20	0	10	1.3	33	0	10	1.3	35	0
4/4/2008	21.1	6.1	20	0	21.1	6.1	33	0	21.1	6.1	35	0
4/5/2008	9.2	4.9	20	0	9.2	4.9	33	0	9.2	4.9	35	0
4/6/2008	10.7	6.7	20	0	10.7	6.7	33	0	10.7	6.7	35	0
4/7/2008	11.5	6.2	20	0	11.5	6.2	33	0	11.5	6.2	35	0
4/8/2008	9.8	5.6	20	0	9.8	5.6	33	0	9.8	5.6	34	1
4/9/2008	11.2	5.1	20	0	11.2	5.1	33	0	11.2	5.1	34	0
4/10/2008	12.2	7.1	20	0	12.2	7.1	33	0	12.2	7.1	34	0

Table 2 continued

Date	C10 Max Temp	C10 Min Temp	C10 Alive	C10 Dead	C11 Max Temp	C11 Min Temp	C11 Alive	C11 Dead	C12 Max Temp	C12 Min Temp	C12 Alive	C12 Dead
4/11/2008	12.9	4.9	20	0	12.9	4.9	33	0	12.9	4.9	34	0
4/12/2008	16.2	6.8	17	3	16.2	6.8	33	0	16.2	6.8	34	0
4/13/2008	21.2	9.1	17	0	21.2	9.1	33	0	21.2	9.1	34	0
4/14/2008	14.5	7.5	17	0	14.5	7.5	33	0	14.5	7.5	34	0
4/15/2008	21.1	3.2	17	0	21.1	3.2	33	0	21.1	3.2	34	0
4/16/2008	9.1	5.5	17	0	9.1	5.5	33	0	9.1	5.5	34	0
4/17/2008	13.3	7.3	17	0	13.3	7.3	33	0	13.3	7.3	34	0
4/18/2008	13.8	6	17	0	13.8	6	33	0	13.8	6	34	0
4/19/2008	7.4	3.9	17	0	7.4	3.9	33	0	7.4	3.9	34	0
4/20/2008	9.8	3.7	17	0	9.8	3.7	33	0	9.8	3.7	34	0
4/21/2008	14.8	3.8	17	0	14.8	3.8	33	0	14.8	3.8	34	0
4/22/2008	16.6	5.6	17	0	16.6	5.6	31	2	16.6	5.6	34	0
4/23/2008	18.6	7	17	0	18.6	7	31	0	18.6	7	34	0
4/24/2008	18.5	7.6	17	0	18.5	7.6	31	0	18.5	7.6	34	0
4/25/2008	16.1	7.2	17	0	16.1	7.2	31	0	16.1	7.2	34	0
4/26/2008	19.2	5.6	17	0	19.2	5.6	31	0	19.2	5.6	34	0
4/27/2008	21.5	9	17	0	21.5	9	31	0	21.5	9	34	0
4/28/2008	20.3	10.4	17	0	20.3	10.4	31	0	20.3	10.4	34	0
4/29/2008	20.3	10.4	17	0	20.3	10.4	30	1	20.3	10.4	33	1
4/30/2008	18.1	7	17	0	18.1	7	30	0	18.1	7	32	1
5/1/2008	18.1	6.9	17	0	18.1	6.9	30	0	18.1	6.9	32	0
5/2/2008	19.9	6.9	17	0	19.9	6.9	30	0	19.9	6.9	32	0
5/3/2008	23.6	13	15	2	23.6	13	29	1	23.6	13	32	0
5/4/2008	22.8	11.3	15	0	22.8	11.3	29	0	22.8	11.3	31	1
5/5/2008	24.8	11.7	15	0	24.8	11.7	29	0	24.8	11.7	31	0
5/6/2008	25.1	12.5	15	0	25.1	12.5	29	0	25.1	12.5	31	0
5/7/2008	21.5	11.6	15	0	21.5	11.6	29	0	21.5	11.6	31	0
5/8/2008	22.1	11	15	0	22.1	11	29	0	22.1	11	31	0
5/9/2008	22.3	9.7	15	0	22.3	9.7	29	0	22.3	9.7	31	0
5/10/2008	24.1	12.3	15	0	24.1	12.3	29	0	24.1	12.3	31	0
5/11/2008	23.2	11.8	15	0	23.2	11.8	29	0	23.2	11.8	31	0
5/12/2008	21.4	10.8	15	0	21.4	10.8	29	0	21.4	10.8	31	0
5/13/2008	16.9	11	15	0	16.9	11	29	0	16.9	11	31	0

Table 2 continued

Date	C13 Max Temp	C13 Min Temp	C13 Alive	C13 Dead
3/8/2008	10.4	7.3	23	0
3/9/2008	12.2	5.4	23	0
3/10/2008	12.6	8.6	23	0
3/11/2008	13.9	7.9	23	0
3/12/2008	10.1	4	23	0
3/13/2008	11.5	7.2	21	2
3/14/2008	11.5	6.6	21	0
3/15/2008	9.7	6.2	21	0
3/16/2008	10.9	6	21	0
3/17/2008	9.8	6.2	21	0
3/18/2008	11.1	6.9	20	1
3/19/2008	10.7	4.8	20	0
3/20/2008	11.2	5.5	20	0
3/21/2008	11.2	5	20	0
3/22/2008	9.6	2.9	20	0
3/23/2008	12.1	3.4	20	0
3/24/2008	11.5	4	20	0
3/25/2008	11.7	3	20	0
3/26/2008	9.4	5.6	20	0
3/27/2008	9	4.1	20	0
3/28/2008	7.6	3.9	20	0
3/29/2008	7.3	3.8	20	0
3/30/2008	8.5	2.9	20	0
3/31/2008	11.1	4.2	20	0
4/1/2008	10	2.9	20	0
4/2/2008	11.5	2.3	20	0
4/3/2008	10	1.3	20	0
4/4/2008	21.1	6.1	20	0
4/5/2008	9.2	4.9	20	0
4/6/2008	10.7	6.7	20	0
4/7/2008	11.5	6.2	20	0
4/8/2008	9.8	5.6	20	0
4/9/2008	11.2	5.1	20	0
4/10/2008	12.2	7.1	20	0
4/11/2008	12.9	4.9	20	0
4/12/2008	16.2	6.8	18	2
4/13/2008	21.2	9.1	18	0
4/14/2008	14.5	7.5	18	0
4/15/2008	21.1	3.2	18	0
4/16/2008	9.1	5.5	18	0
4/17/2008	13.3	7.3	18	0
4/18/2008	13.8	6	18	0
4/19/2008	7.4	3.9	18	0
4/20/2008	9.8	3.7	18	0
4/21/2008	14.8	3.8	18	0
4/22/2008	16.6	5.6	18	0
4/23/2008	18.6	7	18	0
4/24/2008	18.5	7.6	18	0
4/25/2008	16.1	7.2	18	0
4/26/2008	19.2	5.6	18	0
4/27/2008	21.5	9	18	0
4/28/2008	20.3	10.4	18	0
4/29/2008	20.3	10.4	18	0
4/30/2008	18.1	7	17	1
5/1/2008	18.1	6.9	17	0
5/2/2008	19.9	6.9	16	1
5/3/2008	23.6	13	14	2
5/4/2008	22.8	11.3	14	0
5/5/2008	24.8	11.7	14	0
5/6/2008	25.1	12.5	14	0
5/7/2008	21.5	11.6	14	0
5/8/2008	22.1	11	14	0
5/9/2008	22.3	9.7	14	0
5/10/2008	24.1	12.3	14	0
5/11/2008	23.2	11.8	14	0
5/12/2008	21.4	10.8	14	0
5/13/2008	16.9	11	14	0

Table 3 2009 Northwest Trek Early Rearing Interval, Black River (collected 3/12/2009)

Date	B1-A Max Temp	B1-A Min Temp	B1-A Alive	B1-A Dead	B1-A Notes	B2-A Max Temp	B2-A Min Temp	B2-A Alive	B2-A Dead	B2- Notes
3/12/2009	13.8	11.3	42	0		13.8	11.3	46	0	
3/13/2009	14.3	11.6	42	0		14.3	11.6	46	0	
3/14/2009	14.9	11.5	42	0		14.9	11.5	46	0	
3/15/2009	13.7	12	42	0		13.7	12	45	1	
3/16/2009	12	12	42	0		12	12	45	0	
3/17/2009	13.9	12.9	42	0		13.9	12.9	45	0	
3/18/2009	13.5	10.8	42	0		13.5	10.8	45	0	
3/19/2009	14.1	11.3	42	0		14.1	11.3	45	0	
3/20/2009	14.6	11.2	42	0		14.6	11.2	45	0	
3/21/2009	14.1	10.8	42	0		14.1	10.8	45	0	
3/22/2009	13.4	10.6	33	9		13.4	10.6	36	9	
3/23/2009	12.7	11.5	33	0		12.7	11.5	36	0	
3/24/2009	12.6	10.3	40	0	7 OSF from B5-A	12.6	10.3	40	0	4 OSF from B5-A
3/25/2009	14.8	11.5	40	0		14.8	11.5	40	0	
3/26/2009	11.9	11.3	40	0		11.9	11.3	40	0	
3/27/2009	13.3	10.9	40	0		13.3	10.9	40	0	
3/28/2009	13.8	10.8	40	0		13.8	10.8	40	0	
3/29/2009	14	11.4	40	0		14	11.4	40	0	
3/30/2009	13.9	11.7	40	0		13.9	11.7	40	0	
3/31/2009	25.6	18.5	40	0		25.6	18.5	40	0	
4/1/2009	28.9	18.3	40	0		28.9	18.3	40	0	
4/2/2009	28.9	17.7	40	0		28.9	17.7	40	0	
4/3/2009	29.2	17.8	40	0		29.2	17.8	40	0	
4/4/2009	29.1	17.7	40	0		29.1	17.7	40	0	
4/5/2009	29	17.3	40	0		29	17.3	40	0	
4/6/2009	22.2	16.7	40	0		22.2	16.7	40	0	
4/7/2009	23.7	17.7	40	0		23.7	17.7	40	0	
4/8/2009	22.3	19.2	20	0	19 OSF to B1-B	22.3	19.2	20	0	20 OSF to B2-B
4/9/2009	21.4	18.9	20	0		21.4	18.9	20	0	
4/10/2009	20.9	18.8	20	0		20.9	18.8	20	0	
4/11/2009	21.3	18.9	20	0		21.3	18.9	20	0	
4/12/2009	21.8	18	20	0		21.8	18	20	0	
4/13/2009	22.4	13.5	20	0		22.4	13.5	20	0	
4/14/2009	22	12	20	0		22	12	20	0	
4/15/2009	20.7	12.9	20	0		20.7	12.9	20	0	
4/16/2009	20.3	16.4	20	0		20.3	16.4	20	0	

4/17/2009	20.4	17.4	20	0		20.4	17.4	20	0	
4/18/2009	20.2	16.9	20	0		20.2	16.9	20	0	
4/19/2009	20.2	17.5	20	0		20.2	17.5	20	0	
4/20/2009	20.5	17.5	20	0		20.5	17.5	20	0	
4/21/2009	19.9	18.3	20	0		19.9	18.3	20	0	
4/22/2009	20.5	18.6	20	0		20.5	18.6	20	0	
4/23/2009	20.2	17.1	20	0		20.2	17.1	20	0	
4/24/2009	19.9	16.4	20	0		19.9	16.4	20	0	
4/25/2009	20.4	17.4	20	0		20.4	17.4	20	0	
4/26/2009	20	16.7	20	0		20	16.7	20	0	
4/27/2009	20	16.7	19	1		20	16.7	20	0	
4/28/2009	19.8	17.4	19	0		19.8	17.4	20	0	
4/29/2009	19.9	17.1	19	0		19.9	17.1	20	0	
4/30/2009	20.2	17.2	19	0		20.2	17.2	20	0	
5/1/2009	20.6	15.7	19	0		20.6	15.7	20	0	
5/2/2009	20.5	15.7	19	0		20.5	15.7	20	0	
5/3/2009	20.2	15.9	19	0		20.2	15.9	20	0	
5/4/2009	20.3	15.8	19	0		20.3	15.8	20	0	
5/5/2009	19.6	15.7	19	0		19.6	15.7	17	3	

Table 3 continued

Date	B5-A Max Temp	B5-A Min Temp	B5-A Alive	B5-A Dead	B5-A Notes	B6-A Max Temp	B6-A Min Temp	B6-A Alive	B6-A Dead	B6-A Notes
3/12/2009	13.8	11.3	137	0						
3/13/2009	14.3	11.6	137	0						
3/14/2009	14.9	11.5	137	0						
3/15/2009	13.7	12.0	137	0						
3/16/2009	12.0	12.0	137	0						
3/17/2009	13.9	12.9	137	0						
3/18/2009	13.5	10.8	137	0						
3/19/2009	14.1	11.3	137	0						
3/20/2009	14.6	11.2	137	0						
3/21/2009	14.1	10.8	137	0						
3/22/2009	13.4	10.6	137	0						
3/23/2009	12.7	11.5	137	0						
3/24/2009	12.6	10.3	46	0	OSF: 7 to B1-A, 4 to B2-A, 40 to B6-A, 40 to B7-A	12.6	10.3	40	0	40 OSF from B5-A
3/25/2009	14.8	11.5	46	0		14.8	11.5	40	0	
3/26/2009	11.9	11.3	46	0		11.9	11.3	40	0	
3/27/2009	13.3	10.9	45	1		13.3	10.9	40	0	
3/28/2009	13.8	10.8	45	0		13.8	10.8	40	0	
3/29/2009	14.0	11.4	45	0		14.0	11.4	40	0	

3/30/2009	13.9	11.7	45	0		13.9	11.7	40	0	
3/31/2009	26.7	18.2	45	0		26.7	18.2	40	0	
4/1/2009	28.8	17.7	45	0		28.8	17.7	40	0	
4/2/2009	29.6	9.0	45	0		29.6	9.0	40	0	
4/3/2009	29.1	17.6	45	0		29.1	17.6	40	0	
4/4/2009	29.1	17.7	45	0		29.1	17.7	40	0	
4/5/2009	29.1	17.0	45	0		29.1	17.0	40	0	
4/6/2009	22.2	16.7	45	0		22.2	16.7	40	0	
4/7/2009	29.1	17.0	45	0		29.1	17.0	40	0	
4/8/2009	22.3	19.2	20	0	25 OSF to B5-B	22.3	19.2	20	0	20 OSF to B6-B
4/9/2009	21.4	18.9	20	0		21.4	18.9	20	0	
4/10/2009	20.9	18.8	20	0		20.9	18.8	20	0	
4/11/2009	21.3	18.9	20	0		21.3	18.9	20	0	
4/12/2009	21.8	18.0	20	0		21.8	18.0	20	0	
4/13/2009	22.4	13.5	20	0		22.4	13.5	20	0	
4/14/2009	22.0	12.0	20	0		22.0	12.0	20	0	
4/15/2009	20.7	12.9	20	0		20.7	12.9	20	0	
4/16/2009	20.3	16.4	20	0		20.3	16.4	20	0	
4/17/2009	20.4	17.4	20	0		20.4	17.4	20	0	
4/18/2009	20.2	16.9	20	0		20.2	16.9	20	0	
4/19/2009	20.2	17.5	20	0		20.2	17.5	20	0	
4/20/2009	20.5	17.5	20	0		20.5	17.5	20	0	
4/21/2009	19.9	18.3	19	1		19.9	18.3	20	0	
4/22/2009	20.5	18.6	19	0		20.5	18.6	20	0	
4/23/2009	20.2	17.1	19	0		20.2	17.1	20	0	
4/24/2009	19.9	16.4	19	0		19.9	16.4	20	0	
4/25/2009	20.4	17.4	19	0		20.4	17.4	20	0	
4/26/2009	20.0	16.7	19	0		20.0	16.7	20	0	
4/27/2009	20.0	16.7	19	0		20.0	16.7	20	0	
4/28/2009	19.8	17.4	19	0		19.8	17.4	20	0	
4/29/2009	19.9	17.1	19	0		19.9	17.1	20	0	
4/30/2009	20.2	17.2	19	0		20.2	17.2	20	0	
5/1/2009	20.6	15.7	19	0		20.6	15.7	20	0	
5/2/2009	20.5	15.7	19	0		20.5	15.7	20	0	
5/3/2009	20.2	15.9	19	0		20.2	15.9	20	0	
5/4/2009	20.3	15.8	19	0		20.3	15.8	20	0	
5/5/2009	19.6	15.7	18	1		19.6	15.7	20	0	

Table 3 continued

Date	B7-A Max Temp	B7-A Min Temp	B7-A Alive	B7-A Dead	B7-A Notes
3/24/2009	12.6	10.3	40	0	40 OSF from B5-A
3/25/2009	14.8	11.5	40	0	
3/26/2009	11.9	11.3	40	0	
3/27/2009	13.3	10.9	40	0	
3/28/2009	13.8	10.8	40	0	

3/29/2009	14.0	11.4	40	0	
3/30/2009	13.9	11.7	40	0	
3/31/2009	26.7	18.2	40	0	
4/1/2009	28.8	17.7	40	0	
4/2/2009	29.6	9.0	40	0	
4/3/2009	29.1	17.6	40	0	
4/4/2009	29.1	17.7	40	0	
4/5/2009	29.1	17.0	40	0	
4/6/2009	22.2	16.7	40	0	
4/7/2009	29.1	17.0	40	0	
4/8/2009	22.3	19.2	20	0	20 OSF to B7-B
4/9/2009	21.4	18.9	20	0	
4/10/2009	20.9	18.8	20	0	
4/11/2009	21.3	18.9	20	0	
4/12/2009	21.8	18.0	20	0	
4/13/2009	22.4	13.5	20	0	
4/14/2009	22.0	12.0	20	0	
4/15/2009	20.7	12.9	20	0	
4/16/2009	20.3	16.4	20	0	
4/17/2009	20.4	17.4	20	0	
4/18/2009	20.2	16.9	20	0	
4/19/2009	20.2	17.5	20	0	
4/20/2009	20.5	17.5	20	0	
4/21/2009	19.9	18.3	19	1	
4/22/2009	20.5	18.6	19	0	
4/23/2009	20.2	17.1	19	0	
4/24/2009	19.9	16.4	19	0	
4/25/2009	20.4	17.4	19	0	
4/26/2009	20.0	16.7	19	0	
4/27/2009	20.0	16.7	19	0	
4/28/2009	19.8	17.4	19	0	
4/29/2009	19.9	17.1	19	0	
4/30/2009	20.2	17.2	19	0	
5/1/2009	20.6	15.7	19	0	
5/2/2009	20.5	15.7	19	0	
5/3/2009	20.2	15.9	19	0	
5/4/2009	20.3	15.8	19	0	
5/5/2009	19.6	15.7	19	0	

Table 3 continued

Date	B1-B Max Temp	B1-B Min Temp	B1-B Alive	B1-B Dead	B1-B Notes	B2-B Max Temp	B2-B Min Temp	B2-B Alive	B2-B Dead	B2-B Notes
4/8/2009	21.0	17.8	19	0	19 OSF from B1-A	21.0	17.8	20	0	20 OSF from B2-A
4/9/2009	20.6	17.5	19	0		20.6	17.5	20	0	
4/10/2009	20.1	17.6	19	0		20.1	17.6	20	0	
4/11/2009	21.1	17.8	19	0		21.1	17.8	20	0	
4/12/2009	21.2	19.5	19	0		21.2	19.5	20	0	

4/13/2009	21.6	12.8	19	0		21.6	12.8	20	0	
4/14/2009	25.7	12.9	19	0		25.7	12.9	20	0	
4/15/2009	21.3	12.0	19	0		21.3	12.0	20	0	
4/16/2009	20.3	16.0	19	0		20.3	16.0	20	0	
4/17/2009	20.5	17.5	19	0		20.5	17.5	20	0	
4/18/2009	20.1	17.0	19	0		20.1	17.0	20	0	
4/19/2009	20.1	17.3	19	0		20.1	17.3	20	0	
4/20/2009	20.5	18.3	19	0		20.5	18.3	20	0	
4/21/2009	20.1	18.3	19	0		20.1	18.3	20	0	
4/22/2009	20.7	18.5	19	0		20.7	18.5	20	0	
4/23/2009	20.3	17.0	19	0		20.3	17.0	20	0	
4/24/2009	20.3	16.4	19	0		20.3	16.4	20	0	
4/25/2009	20.6	17.4	19	0		20.6	17.4	20	0	
4/26/2009	20.3	17.0	19	0		20.3	17.0	20	0	
4/27/2009	20.3	17.0	19	0		20.3	17.0	20	0	
4/28/2009	20.1	17.2	19	0		20.1	17.2	20	0	
4/29/2009	20.3	17.0	19	0		20.3	17.0	20	0	
4/30/2009	20.4	17.0	19	0		20.4	17.0	20	0	
5/1/2009	21.0	15.7	19	0		21.0	15.7	20	0	
5/2/2009	20.9	15.7	19	0		20.9	15.7	20	0	
5/3/2009	20.1	15.7	19	0		20.1	15.7	20	0	
5/4/2009	20.5	16.0	19	0		20.5	16.0	19	1	
5/5/2009	20.0	15.9	18	1		20.0	15.9	13	6	

Date	B3-B Max Temp	B3-B Min Temp	B3-B Alive	B3-B Dead	B3-B Notes	B4-B Max Temp	B4-B Min Temp	B4-B Alive	B4-B Dead	B4-B Notes
4/8/2009	21.0	17.8	10	0	10 OSF from B3-A	21.0	17.8	17	0.0	17 OSF from B4-A
4/9/2009	20.6	17.5	10	0		20.6	17.5	17	0.0	
4/10/2009	20.1	17.6	10	0		20.1	17.6	17	0.0	
4/11/2009	21.1	17.8	10	0		21.1	17.8	17	0.0	
4/12/2009	21.2	19.5	10	0		21.2	19.5	17	0.0	
4/13/2009	21.6	12.8	10	0		21.6	12.8	17	0.0	
4/14/2009	25.7	12.9	10	0		25.7	12.9	17	0.0	
4/15/2009	21.3	12.0	10	0		21.3	12.0	17	0.0	
4/16/2009	20.3	16.0	10	0		20.3	16.0	17	0.0	
4/17/2009	20.5	17.5	10	0		20.5	17.5	17	0.0	
4/18/2009	20.1	17.0	10	0		20.1	17.0	17	0.0	
4/19/2009	20.1	17.3	10	0		20.1	17.3	17	0.0	
4/20/2009	20.5	18.3	10	0		20.5	18.3	17	0.0	
4/21/2009	20.1	18.3	10	0		20.1	18.3	17	0.0	
4/22/2009	20.7	18.5	10	0		20.7	18.5	17	0.0	
4/23/2009	20.3	17.0	10	0		20.3	17.0	17	0.0	
4/24/2009	20.3	16.4	10	0		20.3	16.4	17	0.0	
4/25/2009	20.6	17.4	10	0		20.6	17.4	17	0.0	
4/26/2009	20.3	17.0	10	0		20.3	17.0	17	0.0	
4/27/2009	20.3	17.0	10	0		20.3	17.0	17	0.0	
4/28/2009	20.1	17.2	10	0		20.1	17.2	17	0.0	
4/29/2009	20.3	17.0	10	0		20.3	17.0	17	0.0	
4/30/2009	20.4	17.0	10	0		20.4	17.0	17	0.0	
5/1/2009	21.0	15.7	10	0		21.0	15.7	17	0.0	
5/2/2009	20.9	15.7	10	0		20.9	15.7	17	0.0	
5/3/2009	20.1	15.7	10	0		20.1	15.7	17	0.0	
5/4/2009	20.5	16.0	10	0		20.5	16.0	17	0.0	

5/5/2009	20.0	15.9	10	0		20.0	15.9	17	0.0	

Table 3 continued

Date	B5-B Max Temp	B5-B Min Temp	B5-B Alive	B5-B Dead	B5-B Notes	B6-B Max Temp	B6-B Min Temp	B6-B Alive	B6-B Dead	B6-B Notes
4/8/2009	21.0	17.8	25	0.0	25 OSF from B5-A	21.0	17.8	20	0	20 OSF from B6-A
4/9/2009	20.6	17.5	25	0.0		20.6	17.5	20	0	
4/10/2009	20.1	17.6	25	0.0		20.1	17.6	20	0	
4/11/2009	21.1	17.8	25	0.0		21.1	17.8	20	0	
4/12/2009	21.2	19.5	25	0.0		21.2	19.5	20	0	
4/13/2009	21.6	12.8	25	0.0		21.6	12.8	20	0	
4/14/2009	25.7	12.9	25	0.0		25.7	12.9	20	0	
4/15/2009	21.3	12.0	25	0.0		21.3	12.0	20	0	
4/16/2009	20.3	16.0	25	0.0		20.3	16.0	19	1	
4/17/2009	20.5	17.5	25	0.0		20.5	17.5	19	0	
4/18/2009	20.1	17.0	25	0.0		20.1	17.0	19	0	
4/19/2009	20.1	17.3	25	0.0		20.1	17.3	19	0	
4/20/2009	20.5	18.3	25	0.0		20.5	18.3	19	0	
4/21/2009	20.1	18.3	25	0.0		20.1	18.3	19	0	
4/22/2009	20.7	18.5	25	0.0		20.7	18.5	19	0	
4/23/2009	20.3	17.0	25	0.0		20.3	17.0	19	0	
4/24/2009	20.3	16.4	25	0.0		20.3	16.4	19	0	
4/25/2009	20.6	17.4	25	0.0		20.6	17.4	19	0	
4/26/2009	20.3	17.0	25	0.0		20.3	17.0	19	0	
4/27/2009	20.3	17.0	25	0.0		20.3	17.0	19	0	
4/28/2009	20.1	17.2	25	0.0		20.1	17.2	19	0	
4/29/2009	20.3	17.0	25	0.0		20.3	17.0	19	0	
4/30/2009	20.4	17.0	25	0.0		20.4	17.0	19	0	
5/1/2009	21.0	15.7	25	0.0		21.0	15.7	19	0	
5/2/2009	20.9	15.7	25	0.0		20.9	15.7	19	0	
5/3/2009	20.1	15.7	25	0.0		20.1	15.7	19	0	
5/4/2009	20.5	16.0	25	0.0		20.5	16.0	19	0	
5/5/2009	20.0	15.9	25	0.0		20.0	15.9	18	1	

Date	B7-B Max Temp	B7-B Min Temp	B7-B Alive	B7-B Dead	B7-B Notes
4/8/2009	21.0	17.8	19	0	19 OSF from B7-A
4/9/2009	20.6	17.5	19	0	
4/10/2009	20.1	17.6	19	0	
4/11/2009	21.1	17.8	19	0	
4/12/2009	21.2	19.5	19	0	
4/13/2009	21.6	12.8	19	0	
4/14/2009	25.7	12.9	19	0	
4/15/2009	21.3	12.0	19	0	
4/16/2009	20.3	16.0	19	0	
4/17/2009	20.5	17.5	19	0	
4/18/2009	20.1	17.0	19	0	
4/19/2009	20.1	17.3	19	0	
4/20/2009	20.5	18.3	19	0	

4/21/2009	20.1	18.3	19	0	
4/22/2009	20.7	18.5	19	0	
4/23/2009	20.3	17.0	19	0	
4/24/2009	20.3	16.4	19	0	
4/25/2009	20.6	17.4	19	0	
4/26/2009	20.3	17.0	19	0	
4/27/2009	20.3	17.0	19	0	
4/28/2009	20.1	17.2	19	0	
4/29/2009	20.3	17.0	19	0	
4/30/2009	20.4	17.0	19	0	
5/1/2009	21.0	15.7	19	0	
5/2/2009	20.9	15.7	19	0	
5/3/2009	20.1	15.7	19	0	
5/4/2009	20.5	16.0	19	0	
5/5/2009	20.0	15.9	19	0	

Table 4 2009 Northwest Trek early rearing interval, Conboy Lake (collected 3/24/2009

Date	C1-A Max Temp	C1-A Min Temp	C1-A Alive	C1-A Dead	C1-A Notes	C2-A Max Temp	C2-A Min Temp	C2-A Alive	C2-A Dead	C2-A Notes
3/24/2009	24.9	10.0	40	0		24.9	10.0	40	0	
3/25/2009	29.0	24.2	40	0		29.0	24.2	40	0	
3/26/2009	28.1	20.3	40	0		28.1	20.3	40	0	
3/27/2009	25.4	24.3	40	0		25.4	24.3	40	0	
3/28/2009	27.5	24.3	39	1		27.5	24.3	40	0	
3/29/2009	25.4	24.0	39	0		25.4	24.0	40	0	
3/30/2009	26.6	24.0	39	0		26.6	24.0	40	0	
3/31/2009	25.6	18.0	39	0		25.6	18.0	40	0	
4/1/2009	28.9	18.3	39	0		28.9	18.3	40	0	
4/2/2009	28.6	18.0	39	0		28.6	18.0	40	0	
4/3/2009	28.7	17.7	39	0		28.7	17.7	40	0	
4/4/2009	29.0	17.9	26	13		29.0	17.9	39	1	
4/5/2009	28.8	17.6	26	0		28.8	17.6	39	0	
4/6/2009	22.2	16.7	26	0		22.2	16.7	39	0	
4/7/2009	28.1	16.9	13	0	13 OSF to C1-B	28.1	16.9	20	0	19 OSF to C2-B
4/8/2009	27.8	18.3	13	0		27.8	18.3	12	8	
4/9/2009	21.6	18.0	13	0		21.6	18.0	12	0	
4/10/2009	21.7	18.0	13	0		21.7	18.0	12	0	
4/11/2009	21.1	16.5	13	0		21.1	16.5	12	0	
4/12/2009	22.1	18.5	13	0		22.1	18.5	12	0	
4/13/2009	21.3	13.0	13	0		21.3	13.0	12	0	
4/14/2009	21.7	11.8	13	0		21.7	11.8	12	0	
4/15/2009	21.0	12.0	13	0		21.0	12.0	12	0	
4/16/2009	20.1	15.8	13	0		20.1	15.8	10	2	
4/17/2009	20.1	17.0	13	0		20.1	17.0	10	0	
4/18/2009	20.1	16.6	13	0		20.1	16.6	10	0	
4/19/2009	20.0	17.0	13	0		20.0	17.0	10	0	
4/20/2009	20.3	18.0	12	1		20.3	18.0	10	0	
4/21/2009	20.8	18.0	12	0		20.8	18.0	10	0	
4/22/2009	20.4	18.0	12	0		20.4	18.0	10	0	
4/23/2009	20.3	16.6	12	0		20.3	16.6	10	0	

4/24/2009	20.0	16.0	12	0		20.0	16.0	10	0	
4/25/2009	20.2	17.0	12	0		20.2	17.0	10	0	
4/26/2009	20.3	16.5	12	0		20.3	16.5	10	0	
4/27/2009	20.3	16.5	12	0		20.3	16.5	10	0	
4/28/2009	20.1	17.0	12	0		20.1	17.0	10	0	
4/29/2009	19.8	16.7	12	0		19.8	16.7	10	0	
4/30/2009	20.1	16.9	12	0		20.1	16.9	10	0	
5/1/2009	20.4	15.3	12	0		20.4	15.3	10	0	
5/2/2009	20.7	15.3	12	0		20.7	15.3	10	0	
5/3/2009	20.1	15.6	12	0		20.1	15.6	10	0	
5/4/2009	20.0	15.6	12	0		20.0	15.6	10	0	
5/5/2009	19.7	15.5	12	0		19.7	15.5	9	1	

Table 4 continued

Date	C3-A Max Temp	C3-A Min Temp	C3-A Alive	C3-A Dead	C3-A Notes	C4-A Max Temp	C4-A Min Temp	C4-A Alive	C4-A Dead	C4-A Notes
3/24/2009	24.9	10.0	40	0		24.9	10.0	39	0	
3/25/2009	29.0	24.2	40	0		29.0	24.2	39	0	
3/26/2009	28.1	20.3	40	0		28.1	20.3	38	0	
3/27/2009	26.0	23.5	40	0		26.0	23.5	38	0	
3/28/2009	26.1	23.3	39	1		26.1	23.3	38	1	
3/29/2009	26.2	23.5	39	0		26.2	23.5	38	0	
3/30/2009	27.0	23.4	39	0		27.0	23.4	38	0	
3/31/2009	25.6	18.0	39	0		25.6	18.0	37	0	
4/1/2009	29.1	18.0	39	0		29.1	18.0	35	0	
4/2/2009	29.4	18.0	39	0		29.4	18.0	23	1	
4/3/2009	29.5	17.6	38	1		29.5	17.6	23	2	
4/4/2009	29.3	17.6	22	16		29.3	17.6	23	12	
4/5/2009	28.1	17.0	22	0		28.1	17.0	23	0	
4/6/2009	22.2	16.7	22	0		22.2	16.7	23	0	
4/7/2009	28.1	16.9	11	0	11 OSF to C3-B	28.1	16.9	11	0	12 OSF to C4-B
4/8/2009	27.8	18.3	11	0		27.8	18.3	11	0	
4/9/2009	21.6	18.0	11	0		21.6	18.0	11	0	
4/10/2009	21.7	18.0	11	0		21.7	18.0	11	0	
4/11/2009	21.1	16.5	11	0		21.1	16.5	11	0	
4/12/2009	22.1	18.5	11	0		22.1	18.5	11	0	
4/13/2009	21.3	13.0	11	0		21.3	13.0	11	0	
4/14/2009	21.7	11.8	11	0		21.7	11.8	11	0	
4/15/2009	21.0	12.0	11	0		21.0	12.0	11	0	
4/16/2009	20.1	15.8	11	0		20.1	15.8	11	0	
4/17/2009	20.1	17.0	11	0		20.1	17.0	11	0	
4/18/2009	20.1	16.6	11	0		20.1	16.6	11	0	
4/19/2009	20.0	17.0	11	0		20.0	17.0	11	0	
4/20/2009	20.3	18.0	11	0		20.3	18.0	11	0	
4/21/2009	20.8	18.0	11	0		20.8	18.0	11	0	
4/22/2009	20.4	18.0	11	0		20.4	18.0	11	0	
4/23/2009	20.3	16.6	11	0		20.3	16.6	11	0	
4/24/2009	20.0	16.0	11	0		20.0	16.0	11	0	
4/25/2009	20.2	17.0	11	0		20.2	17.0	11	0	
4/26/2009	20.3	16.5	11	0		20.3	16.5	11	0	
4/27/2009	20.3	16.5	11	0		20.3	16.5	11	0	
4/28/2009	20.1	17.0	11	0		20.1	17.0	11	0	

4/29/2009	19.8	16.7	11	0		19.8	16.7	11	0	
4/30/2009	20.1	16.9	11	0		20.1	16.9	11	0	
5/1/2009	20.4	15.3	11	0		20.4	15.3	11	0	
5/2/2009	20.7	15.3	11	0		20.7	15.3	11	0	
5/3/2009	20.1	15.6	11	0		20.1	15.6	10	1	
5/4/2009	20.0	15.6	11	0		20.0	15.6	10	0	
5/5/2009	19.7	15.5	11	0		19.7	15.5	9	1	

Table 4 continued

Date	C5-A Max Temp	C5-A Min Temp	C5-A Alive	C5-A Dead	C5-A Notes	C5-B Max Temp	C5-B Min Temp	C5-B Alive	C5-B Dead	C5-B Notes
3/24/2009	24.9	10.0	39	0						
3/25/2009	29.0	24.2	39	0						
3/26/2009	28.1	20.3	39	0						
3/27/2009	26.0	23.5	38	1						
3/28/2009	26.1	23.3	38	0						
3/29/2009	26.2	23.5	38	0						
3/30/2009	27.0	23.4	38	0						
3/31/2009	25.6	18.0	38	0						
4/1/2009	29.1	18.0	38	0						
4/2/2009	29.4	18.0	37	1						
4/3/2009	29.5	17.6	36	1						
4/4/2009	29.3	17.6	34	2						
4/5/2009	28.1	17.0	34	0						
4/6/2009	22.2	16.7	34	0						
4/7/2009	28.1	16.9	16	1	17 OSF to C5-B	25.0	17.9	17	0	17 OSF from C5-A
4/8/2009	27.8	18.3	16	0		21.7	19.0	17	0	
4/9/2009	21.6	18.0	16	0		22.1	17.8	17	0	
4/10/2009	21.7	18.0	16	0		22.1	18.6	17	0	
4/11/2009	21.1	16.5	16	0		22.1	16.3	17	0	
4/12/2009	22.1	18.5	16	0		22.0	19.4	17	0	
4/13/2009	21.3	13.0	16	0		21.2	13.4	17	0	
4/14/2009	21.7	11.8	16	0		22.1	11.8	17	0	
4/15/2009	21.0	12.0	16	0		21.1	13.0	17	0	
4/16/2009	20.1	15.8	16	0		20.2	16.0	17	0	
4/17/2009	20.1	17.0	15	1		20.1	17.5	16	1	
4/18/2009	20.1	16.6	15	0		20.1	17.0	16	0	
4/19/2009	20.0	17.0	15	0		20.1	17.3	16	0	
4/20/2009	20.3	18.0	15	0		20.8	18.0	15	1	
4/21/2009	20.8	18.0	15	0		20.5	18.0	15	0	
4/22/2009	20.4	18.0	15	0		20.5	18.2	15	0	
4/23/2009	20.3	16.6	15	0		20.6	16.8	15	0	
4/24/2009	20.0	16.0	15	0		20.1	16.3	15	0	
4/25/2009	20.2	17.0	15	0		20.5	17.4	15	0	
4/26/2009	20.3	16.5	15	0		20.5	16.8	15	0	
4/27/2009	20.3	16.5	15	0		20.6	16.8	13	2	
4/28/2009	20.1	17.0	15	0		20.1	19.8	13	0	
4/29/2009	19.8	16.7	15	0		20.0	16.8	13	0	
4/30/2009	20.1	16.9	15	0		20.2	17.0	13	0	
5/1/2009	20.4	15.3	14	1		20.5	15.6	13	0	
5/2/2009	20.7	15.3	14	0		20.6	15.6	12	1	
5/3/2009	20.1	15.6	14	0		20.1	15.7	12	0	

5/4/2009	20.0	15.6	14	0		20.3	15.7	12	0	
5/5/2009	19.7	15.5	12	2		20.0	15.5	10	2	

Table 4 continued

Date	C1-B Max Temp	C1-B Min Temp	C1-B Alive	C1-B Dead	C1-B Notes	C2-B Max Temp	C2-B Min Temp	C2-B Alive	C2-B Dead	C2-B Notes
3/24/2009	25.0	17.9	13	0	13 OSF from C1-A	25.0	17.9	19	0	19 OSF from C2-A
3/25/2009	21.7	19.0	13	0		21.7	19.0	19	0	
3/26/2009	22.1	17.8	13	0		22.1	17.8	19	0	
3/27/2009	22.1	18.6	13	0		22.1	18.6	19	0	
3/28/2009	22.1	16.3	13	0		22.1	16.3	19	0	
3/29/2009	22.0	19.4	13	0		22.0	19.4	19	0	
3/30/2009	21.2	13.4	13	0		21.2	13.4	19	0	
3/31/2009	22.1	11.8	13	0		22.1	11.8	19	0	
4/1/2009	21.1	13.0	13	0		21.1	13.0	19	0	
4/2/2009	20.2	16.0	13	0		20.2	16.0	18	1	
4/3/2009	20.1	17.5	13	0		20.1	17.5	18	0	
4/4/2009	20.1	17.0	13	0		20.1	17.0	18	0	
4/5/2009	20.1	17.3	13	0		20.1	17.3	18	0	
4/6/2009	20.8	18.0	12	1		20.8	18.0	17	1	
4/7/2009	20.5	18.0	12	0		20.5	18.0	17	0	
4/8/2009	20.5	18.2	12	0		20.5	18.2	17	0	
4/9/2009	20.6	16.8	12	0		20.6	16.8	17	0	
4/10/2009	20.1	16.3	12	0		20.1	16.3	17	0	
4/11/2009	20.5	17.4	11	1		20.5	17.4	17	0	
4/12/2009	20.5	16.8	11	0		20.5	16.8	17	0	
4/13/2009	20.6	16.8	9	2		20.6	16.8	16	1	
4/14/2009	20.1	19.8	9	0		20.1	19.8	16	0	
4/15/2009	20.0	16.8	9	0		20.0	16.8	16	0	
4/16/2009	20.2	17.0	9	0		20.2	17.0	16	0	
4/17/2009	20.5	15.6	9	0		20.5	15.6	16	0	
4/18/2009	20.6	15.6	9	0		20.6	15.6	16	0	
4/19/2009	20.1	15.7	9	0		20.1	15.7	16	0	
4/20/2009	20.3	15.7	7	2		20.3	15.7	16	0	
4/21/2009	20.0	15.5	6	1		20.0	15.5	14	2	

Table 4 continued

Date	C3-B Max Temp	C3-B Min Temp	C3-B Alive	C3-B Dead	C3-B Notes	C4-B Max Temp	C4-B Min Temp	C4-B Alive	C4-B Dead	C4-B Notes
3/24/2009	25.0	17.9	11	0	11 OSF from C3-A	25.0	17.9	12	0	12 OSF from C4-A
3/25/2009	21.7	19.0	11	0		21.7	19.0	12	0	
3/26/2009	22.1	17.8	10	1		22.1	17.8	12	0	
3/27/2009	22.1	18.6	10	0		22.1	18.6	12	0	
3/28/2009	22.1	16.3	10	0		22.1	16.3	12	0	
3/29/2009	22.0	19.4	10	0		22.0	19.4	12	0	
3/30/2009	21.2	13.4	10	0		21.2	13.4	12	0	
3/31/2009	22.1	11.8	10	0		22.1	11.8	10	2	
4/1/2009	21.1	13.0	10	0		21.1	13.0	10	0	
4/2/2009	20.2	16.0	10	0		20.2	16.0	10	0	
4/3/2009	20.1	17.5	10	0		20.1	17.5	10	0	

4/4/2009	20.1	17.0	10	0		20.1	17.0	10	0	
4/5/2009	20.1	17.3	10	0		20.1	17.3	10	0	
4/6/2009	20.8	18.0	10	0		20.8	18.0	10	0	
4/7/2009	20.5	18.0	10	0		20.5	18.0	10	0	
4/8/2009	20.5	18.2	10	0		20.5	18.2	10	0	
4/9/2009	20.6	16.8	10	0		20.6	16.8	10	0	
4/10/2009	20.1	16.3	10	0		20.1	16.3	10	0	
4/11/2009	20.5	17.4	10	0		20.5	17.4	10	0	
4/12/2009	20.5	16.8	10	0		20.5	16.8	10	0	
4/13/2009	20.6	16.8	10	0		20.6	16.8	10	0	
4/14/2009	20.1	19.8	10	0		20.1	19.8	10	0	
4/15/2009	20.0	16.8	10	0		20.0	16.8	10	0	
4/16/2009	20.2	17.0	10	0		20.2	17.0	10	0	
4/17/2009	20.5	15.6	10	0		20.5	15.6	10	0	
4/18/2009	20.6	15.6	10	0		20.6	15.6	10	0	
4/19/2009	20.1	15.7	10	0		20.1	15.7	10	0	
4/20/2009	20.3	15.7	10	0		20.3	15.7	8	2	
4/21/2009	20.0	15.5	9	1		20.0	15.5	7	1	

Table 5 2009 Northwest Trek early rearing stage, Conboy Lake (collected 4/7/2009)

Date	C6 Max Temp	C6 Min Temp	C6 Alive	C6 Dead	C7 Max Temp	C7 Min Temp	C7 Alive	C7 Dead	C8 Max Temp	C8 Min Temp	C8 Alive	C8 Dead
4/7/2009	25.0	17.9	20	0	25.0	17.9	20	0	25.0	17.9	17	0
4/8/2009	21.7	19.0	20	0	21.7	19.0	20	0	21.7	19.0	17	0
4/9/2009	22.1	17.8	20	0	22.1	17.8	20	0	22.1	17.8	17	0
4/10/2009	22.1	18.6	20	0	22.1	18.6	20	0	22.1	18.6	17	0
4/11/2009	22.1	16.3	20	0	22.1	16.3	20	0	22.1	16.3	17	0
4/12/2009	22.0	19.4	20	0	22.0	19.4	20	0	22.0	19.4	17	0
4/13/2009	21.2	13.4	20	0	21.2	13.4	20	0	21.2	13.4	17	0
4/14/2009	22.1	11.8	20	0	22.1	11.8	20	0	22.1	11.8	17	0
4/15/2009	21.1	13.0	20	0	21.1	13.0	20	0	21.1	13.0	17	0
4/16/2009	20.2	16.0	20	0	20.2	16.0	20	0	20.2	16.0	17	0
4/17/2009	20.1	17.5	20	0	20.1	17.5	20	0	20.1	17.5	17	0
4/18/2009	20.1	17.0	20	0	20.1	17.0	20	0	20.1	17.0	17	0
4/19/2009	20.1	17.3	20	0	20.1	17.3	20	0	20.1	17.3	17	0
4/20/2009	20.8	18.0	20	0	20.8	18.0	20	0	20.8	18.0	17	0
4/21/2009	20.5	18.0	20	0	20.5	18.0	20	0	20.5	18.0	17	0
4/22/2009	20.5	18.2	20	0	20.5	18.2	20	0	20.5	18.2	17	0
4/23/2009	20.6	16.8	20	0	20.6	16.8	20	0	20.6	16.8	17	0
4/24/2009	20.1	16.3	20	0	20.1	16.3	20	0	20.1	16.3	17	0
4/25/2009	20.5	17.4	20	0	20.5	17.4	20	0	20.5	17.4	17	0
4/26/2009	20.5	16.8	20	0	20.5	16.8	20	0	20.5	16.8	17	0
4/27/2009	20.6	16.8	20	0	20.6	16.8	20	0	20.6	16.8	17	0
4/28/2009	20.1	19.8	20	0	20.1	19.8	20	0	20.1	19.8	17	0
4/29/2009	20.0	16.8	20	0	20.0	16.8	20	0	20.0	16.8	17	0
4/30/2009	20.2	17.0	20	0	20.2	17.0	20	0	20.2	17.0	17	0
5/1/2009	20.5	15.6	20	0	20.5	15.6	20	0	20.5	15.6	17	0
5/2/2009	20.6	15.6	20	0	20.6	15.6	20	0	20.6	15.6	17	0
5/3/2009	20.1	15.7	20	0	20.1	15.7	20	0	20.1	15.7	17	0
5/4/2009	20.3	15.7	20	0	20.3	15.7	20	0	20.3	15.7	17	0
5/5/2009	20.0	15.5	20	0	20.0	15.5	20	0	20.0	15.5	17	0

Table 6. 2009 Oregon Zoo early rearing interval, Black River (collected 3/21/2009)

Date	B6-A Temp	B6-A Alive	B6-A Dead	B7-A Temp	B7-A Alive	B7-A Dead	B8-A Temp	B8-A Alive	B8-A Dead
3/21/2009	11.1	45	0	11.1	85	0	11.1	40	0
3/22/2009	8.3	45	0	8.3	85	0	8.3	40	0
3/23/2009	6.4	45	0	6.4	85	0	6.4	40	0
3/24/2009	6.4	45	0	6.4	85	0	6.4	40	0
3/25/2009	7.4	45	0	7.4	85	0	7.4	40	0
3/26/2009	8.3	45	0	8.3	85	0	8.3	40	0
3/27/2009	8.9	45	0	8.9	85	0	8.9	40	0
3/28/2009	8.3	45	0	8.3	85	0	8.3	40	0
3/29/2009	6.8	45	0	6.8	85	0	6.8	40	0
3/30/2009	10.0	45	0	10.0	85	0	10.0	40	0
3/31/2009	15.0	45	0	15.0	85	0	15.0	40	0
4/1/2009	15.0	45	0	15.0	85	0	15.0	40	0
4/2/2009	15.0	45	0	15.0	85	0	15.0	40	0
4/3/2009	16.7	45	0	16.7	85	0	16.7	40	0
4/4/2009	15.6	45	0	15.6	85	0	15.6	40	0
4/5/2009	20.0	43	2	20.0	85	0	20.0	40	0
4/6/2009	20.0	40	3	20.0	85	0	20.0	40	0
4/7/2009	22.2	40	0	22.2	85	0	22.2	40	0
4/8/2009	20.6	40	0	20.6	85	0	20.6	40	0
4/9/2009	20.6	40	0	20.6	85	0	20.6	40	0
4/10/2009	21.1	25	0	21.1	20	0	21.1	20	0
4/11/2009	21.7	25	0	21.7	20	0	21.7	20	0
4/12/2009	22.2	25	0	22.2	20	0	22.2	20	0
4/13/2009	20.0	25	0	20.0	20	0	20.0	20	0
4/14/2009	18.9	25	0	18.9	20	0	18.9	20	0
4/15/2009	22.2	25	0	22.2	20	0	22.2	20	0
4/16/2009	23.3	25	0	23.3	20	0	23.3	20	0
4/17/2009	23.9	25	0	23.9	20	0	23.9	20	0
4/18/2009	22.8	25	0	22.8	20	0	22.8	20	0
4/19/2009	22.2	25	0	22.2	20	0	22.2	20	0
4/20/2009		25	0		20	0		20	0
4/21/2009		25	0		20	0		20	0
4/22/2009	24.4	25	0	24.4	20	0	24.4	20	0
4/23/2009	22.8	25	0	22.8	20	0	22.8	20	0
4/24/2009	24.4	25	0	24.4	20	0	24.4	20	0

4/25/2009	23.9	25	0	23.9	20	0	23.9	20	0
4/26/2009	22.2	25	0	22.2	20	0	22.2	20	0
4/27/2009	21.1	25	0	21.1	20	0	21.1	20	0
4/28/2009	21.1	25	0	21.1	20	0	21.1	20	0
4/29/2009	23.3	25	0	23.3	20	0	23.3	20	0
4/30/2009	23.9	25	0	23.9	20	0	23.9	20	0
5/1/2009	22.2	25	0	22.2	20	0	22.2	20	0
5/2/2009	22.2	25	0	22.2	20	0	22.2	20	0
5/3/2009	17.8	25	0	17.8	20	0	17.8	20	0

Date	**B9-A Temp**	**B9-A Alive**	**B9-A Dead**	**B10-A Temp**	**B10-A Alive**	**B10-A Dead**
3/21/2009	11.1	65	0	11.1	63	1
3/22/2009	8.3	65	0	8.3	62	1
3/23/2009	6.4	65	0	6.4	60	2
3/24/2009	6.4	65	0	6.4	58	2
3/25/2009	7.4	65	0	7.4	58	0
3/26/2009	8.3	65	0	8.3	58	0
3/27/2009	8.9	62	3	8.9	54	4
3/28/2009	8.3	59	3	8.3	50	4
3/29/2009	6.8	56	3	6.8	50	0
3/30/2009	10.0	53	3	10.0	50	0
3/31/2009	15.0	50	3	15.0	50	0
4/1/2009	15.0	47	3	15.0	50	0
4/2/2009	15.0	44	3	15.0	50	0
4/3/2009	16.7	41	3	16.7	50	0
4/4/2009	15.6	38	3	15.6	50	0
4/5/2009	20.0	36	2	20.0	48	2
4/6/2009	20.0	36	0	20.0	48	0
4/7/2009	22.2	36	0	22.2	48	0
4/8/2009	20.6	36	0	20.6	48	0
4/9/2009	20.6	36	0	20.6	48	0
4/10/2009	21.1	20	0	21.1	20	0
4/11/2009	21.7	20	0	21.7	20	0
4/12/2009	22.2	20	0	22.2	20	0
4/13/2009	20.0	20	0	20.0	20	0
4/14/2009	18.9	19	1	18.9	20	0
4/15/2009	22.2	19	0	22.2	20	0
4/16/2009	23.3	19	0	23.3	20	0
4/17/2009	23.9	19	0	23.9	20	0
4/18/2009	22.8	19	0	22.8	20	0
4/19/2009	22.2	19	0	22.2	20	0
4/20/2009		19	0		20	0

4/21/2009		19	0		20	0
4/22/2009	24.4	19	0	24.4	20	0
4/23/2009	22.8	19	0	22.8	20	0
4/24/2009	24.4	19	0	24.4	20	0
4/25/2009	23.9	19	0	23.9	20	0
4/26/2009	22.2	19	0	22.2	20	0
4/27/2009	21.1	19	0	21.1	20	0
4/28/2009	21.1	19	0	21.1	20	0
4/29/2009	23.3	19	0	23.3	20	0
4/30/2009	23.9	19	0	23.9	20	0
5/1/2009	22.2	19	0	22.2	20	0
5/2/2009	22.2	19	0	22.2	20	0
5/3/2009	17.8	19	0	17.8	20	0

Table 6 continued

Date	B6-B Temp	B6-B Alive	B6-B Dead	B7-B Temp	B7-B Alive	B7-B Dead	B7-C Temp	B7-C Alive	B7-C Dead	B7-D Temp	B7-D Alive	B7-D Dead
4/10/2009	21.1	15	0	21.1	20	0	21.1	20	0	21.1	20	0
4/11/2009	21.7	15	0	21.7	19	1	21.7	20	0	21.7	20	0
4/12/2009	22.2	15	0	22.2	19	0	22.2	20	0	22.2	20	0
4/13/2009	20.0	15	0	20.0	19	0	20.0	20	0	20.0	20	0
4/14/2009	18.9	15	0	18.9	19	0	18.9	20	0	18.9	20	0
4/15/2009	22.2	15	0	22.2	19	0	22.2	20	0	22.2	20	0
4/16/2009	23.3	15	0	23.3	19	0	23.3	20	0	23.3	20	0
4/17/2009	23.9	15	0	23.9	19	0	23.9	20	0	23.9	20	0
4/18/2009	22.8	15	0	22.8	19	0	22.8	20	0	22.8	20	0
4/19/2009	22.2	15	0	22.2	19	0	22.2	20	0	22.2	20	0
4/20/2009		15	0		19	0		20	0		20	0
4/21/2009		15	0		19	0		20	0		20	0
4/22/2009	24.4	15	0	24.4	19	0	24.4	20	0	24.4	20	0
4/23/2009	22.8	15	0	22.8	19	0	22.8	20	0	22.8	20	0
4/24/2009	24.4	15	0	24.4	19	0	24.4	20	0	24.4	20	0
4/25/2009	23.9	15	0	23.9	19	0	23.9	20	0	23.9	20	0
4/26/2009	22.2	15	0	22.2	19	0	22.2	20	0	22.2	20	0
4/27/2009	21.1	15	0	21.1	19	0	21.1	20	0	21.1	20	0
4/28/2009	21.1	15	0	21.1	19	0	21.1	20	0	21.1	20	0
4/29/2009	23.3	15	0	23.3	19	0	23.3	20	0	23.3	20	0
4/30/2009	23.9	15	0	23.9	19	0	23.9	20	0	23.9	20	0
5/1/2009	22.2	15	0	22.2	19	0	22.2	20	0	22.2	20	0
5/2/2009	22.2	15	0	22.2	19	0	22.2	20	0	22.2	20	0
5/3/2009	17.8	15	0	17.8	19	0	17.8	20	0	17.8	20	0

Table 6 continued

Date	B7-E Temp	B7-E Alive	B7-E Dead	B7-F Temp	B7-F Alive	B7-F Dead	B8-B Temp	B8-B Alive	B8-B Dead	B9-B Temp	B9-B Alive	B9-B Dead
4/10/2009	21.1	20	0	21.1	5	0	21.1	15	0	21.1	16	0

4/11/2009	21.7	20	0	21.7	5	0	21.7	15	0	21.7	16	0
4/12/2009	22.2	20	0	22.2	5	0	22.2	15	0	22.2	16	0
4/13/2009	20.0	20	0	20.0	5	0	20.0	15	0	20.0	16	0
4/14/2009	18.9	20	0	18.9	5	0	18.9	15	0	18.9	16	0
4/15/2009	22.2	20	0	22.2	5	0	22.2	15	0	22.2	16	0
4/16/2009	23.3	20	0	23.3	5	0	23.3	15	0	23.3	16	0
4/17/2009	23.9	20	0	23.9	5	0	23.9	15	0	23.9	16	0
4/18/2009	22.8	20	0	22.8	5	0	22.8	15	0	22.8	16	0
4/19/2009	22.2	20	0	22.2	5	0	22.2	15	0	22.2	16	0
4/20/2009		20	0		5	0		15	0		16	0
4/21/2009		20	0		5	0		15	0		16	0
4/22/2009	24.4	20	0	24.4	5	0	24.4	14	1	24.4	16	0
4/23/2009	22.8	20	0	22.8	5	0	22.8	14	0	22.8	16	0
4/24/2009	24.4	20	0	24.4	5	0	24.4	14	0	24.4	16	0
4/25/2009	23.9	20	0	23.9	5	0	23.9	14	0	23.9	16	0
4/26/2009	22.2	20	0	22.2	5	0	22.2	14	0	22.2	16	0
4/27/2009	21.1	20	0	21.1	5	0	21.1	14	0	21.1	16	0
4/28/2009	21.1	20	0	21.1	5	0	21.1	14	0	21.1	16	0
4/29/2009	23.3	20	0	23.3	5	0	23.3	14	0	23.3	16	0
4/30/2009	23.9	20	0	23.9	5	0	23.9	14	0	23.9	16	0
5/1/2009	22.2	20	0	22.2	5	0	22.2	14	0	22.2	16	0
5/2/2009	22.2	20	0	22.2	5	0	22.2	14	0	22.2	16	0
5/3/2009	17.8	20	0	17.8	5	0	17.8	14	0	17.8	16	0

Table 6 continued

Date	B10-B Temp	B10-B Alive	B10-B Dead	B10-C Temp	B10-C Alive	B10-C Dead
4/10/2009	21.1	20	0	21.1	8	0
4/11/2009	21.7	20	0	21.7	8	0
4/12/2009	22.2	20	0	22.2	8	0
4/13/2009	20.0	20	0	20.0	8	0
4/14/2009	18.9	20	0	18.9	8	0
4/15/2009	22.2	20	0	22.2	8	0
4/16/2009	23.3	20	0	23.3	8	0
4/17/2009	23.9	20	0	23.9	8	0
4/18/2009	22.8	20	0	22.8	8	0
4/19/2009	22.2	20	0	22.2	8	0
4/20/2009		20	0		8	0
4/21/2009		20	0		8	0
4/22/2009	24.4	20	0	24.4	8	0
4/23/2009	22.8	20	0	22.8	8	0
4/24/2009	24.4	20	0	24.4	8	0
4/25/2009	23.9	20	0	23.9	8	0
4/26/2009	22.2	20	0	22.2	8	0
4/27/2009	21.1	20	0	21.1	8	0
4/28/2009	21.1	20	0	21.1	8	0
4/29/2009	23.3	20	0	23.3	8	0
4/30/2009	23.9	20	0	23.9	8	0
5/1/2009	22.2	20	0	22.2	8	0
5/2/2009	22.2	20	0	22.2	8	0
5/3/2009	17.8	20	0	17.8	8	0

Table 7 2009 Oregon Zoo early rearing interval, Conboy Lake (collected 3/21/2009)

Date	C1-A Temp	C1-A Alive	C1-A Dead	C2-A Temp	C2-A Alive	C2-A Dead	C3-A Temp	C3-A Alive
3/21/2009	11.1	41	0	11.1	40	0	11.1	42
3/22/2009	8.3	41	0	8.3	40	0	8.3	42
3/23/2009	7.5	41	0	7.5	40	0	7.5	42
3/24/2009	6.4	41	0	6.4	40	0	6.4	40
3/25/2009	7.4	41	0	7.4	40	0	7.4	40
3/26/2009	7.6	41	0	7.6	40	0	7.6	40
3/27/2009	8.9	39	2	8.9	40	0	8.9	40
3/28/2009	8.3	36	3	8.3	40	0	8.3	40
3/29/2009	6.8	36	0	6.8	40	0	6.8	40
3/30/2009	10.0	36	0	10.0	40	0	10.0	40
3/31/2009	15.0	36	0	15.0	40	0	15.0	40
4/1/2009	15.0	36	0	15.0	40	0	15.0	40
4/2/2009	15.0	36	0	15.0	40	0	15.0	40
4/3/2009	16.7	36	0	16.7	40	0	16.7	40
4/4/2009	15.6	36	0	15.6	40	0	15.6	40
4/5/2009	20.0	36	0	20.0	39	1	20.0	37
4/6/2009	20.0	36	0	20.0	39	0	20.0	37
4/7/2009	23.3	36	0	23.3	39	0	23.3	37
4/8/2009	22.2	36	0	22.2	39	0	22.2	37
4/9/2009	21.1	36	0	21.1	39	0	21.1	37
4/10/2009	21.1	20	0	21.1	20	0	21.1	20
4/11/2009	21.7	20	0	21.7	20	0	21.7	20
4/12/2009	21.7	20	0	21.7	20	0	21.7	20
4/13/2009	20.0	20	0	20.0	20	0	20.0	20
4/14/2009	18.9	20	0	18.9	20	0	18.9	20
4/15/2009	18.3	20	0	18.3	20	0	18.3	20
4/16/2009	20.0	20	0	20.0	20	0	20.0	20
4/17/2009	21.1	20	0	21.1	20	0	21.1	20
4/18/2009	21.1	20	0	21.1	20	0	21.1	20
4/19/2009	21.7	20	0	21.7	20	0	21.7	20
4/20/2009	24.4	20	0	24.4	20	0	24.4	20
4/21/2009		20	0		20	0		20
4/22/2009	23.9	20	0	23.9	20	0	23.9	20
4/23/2009	20.6	20	0	20.6	20	0	20.6	20
4/24/2009	24.4	20	0	24.4	20	0	24.4	20
4/25/2009	22.2	20	0	22.2	20	0	22.2	20
4/26/2009	21.1	20	0	21.1	20	0	21.1	20

4/27/2009	21.1	20	0	21.1	20	0	21.1	20
4/28/2009	20.0	20	0	20.0	20	0	20.0	20
4/29/2009	21.1	20	0	21.1	20	0	21.1	20
4/30/2009	23.3	19	1	23.3	20	0	23.3	20
5/1/2009	22.2	19	0	22.2	20	0	22.2	20
5/2/2009	22.2	19	0	22.2	20	0	22.2	20
5/3/2009	22.2	19	0	22.2	20	0	22.2	20

Table 7. continued

Date	C3-A Dead	C4-A Temp	C4-A Alive	C4-A Dead	C5-A Temp	C5-A Alive	C5-A Dead
3/22/2009	0	8.3	42	0	8.3	41	0
3/23/2009	0	7.5	42	0	7.5	41	0
3/24/2009	2	6.4	40	2	6.4	41	0
3/25/2009	0	7.4	40	0	7.4	41	0
3/26/2009	0	7.6	40	0	7.6	41	0
3/27/2009	0	8.9	40	0	8.9	41	0
3/28/2009	0	8.3	40	0	8.3	41	0
3/29/2009	0	6.8	40	0	6.8	41	0
3/30/2009	0	10.0	40	0	10.0	41	0
3/31/2009	0	15.0	40	0	15.0	41	0
4/1/2009	0	15.0	40	0	15.0	41	0
4/2/2009	0	15.0	40	0	15.0	41	0
4/3/2009	0	16.7	40	0	16.7	41	0
4/4/2009	0	15.6	40	0	15.6	41	0
4/5/2009	3	20.0	36	4	20.0	39	2
4/6/2009	0	20.0	36	0	20.0	39	0
4/7/2009	0	23.3	36	0	23.3	39	0
4/8/2009	0	22.2	36	0	22.2	39	0
4/9/2009	0	21.1	36	0	21.1	39	0
4/10/2009	0	21.1	20	0	21.1	20	0
4/11/2009	0	21.7	20	0	21.7	20	0
4/12/2009	0	21.7	20	0	21.7	20	0
4/13/2009	0	20.0	20	0	20.0	20	0
4/14/2009	0	18.9	20	0	18.9	20	0
4/15/2009	0	18.3	20	0	18.3	20	0
4/16/2009	0	20.0	20	0	20.0	20	0
4/17/2009	0	21.1	20	0	21.1	20	0
4/18/2009	0	21.1	20	0	21.1	20	0
4/19/2009	0	21.7	20	0	21.7	20	0
4/20/2009	0	24.4	20	0	24.4	20	0

4/21/2009	0	23.9	20	0	23.9	20	0
4/22/2009	0	23.9	20	0	23.9	20	0
4/23/2009	0	20.6	20	0	20.6	20	0
4/24/2009	0	24.4	20	0	24.4	20	0
4/25/2009	0	22.2	20	0	22.2	20	0
4/26/2009	0	21.1	20	0	21.1	20	0
4/27/2009	0	21.1	20	0	21.1	20	0
4/28/2009	0	20.0	20	0	20.0	20	0
4/29/2009	0	21.1	20	0	21.1	20	0
4/30/2009	0	23.3	20	0	23.3	20	0
5/1/2009	0	22.2	20	0	22.2	20	0
5/2/2009	0	22.2	20	0	22.2	20	0
5/3/2009	0	22.2	20	0	22.2	20	0

Table 7 continued

Date	C1-B Temp	C1-B Alive	C1-B Dead	C2-B Temp	C2-B Alive	C2-B Dead	C3-B Temp	C3-B Alive	C3-B Dead
4/10/2009	21.1	16	0	21.1	19	0	21.1	17	0
4/11/2009	21.7	16	0	21.7	19	0	21.7	17	0
4/12/2009	21.7	16	0	21.7	19	0	21.7	17	0
4/13/2009	20.0	16	0	20.0	19	0	20.0	17	0
4/14/2009	18.9	16	0	18.9	19	0	18.9	17	0
4/15/2009	18.3	16	0	18.3	19	0	18.3	17	0
4/16/2009	20.0	16	0	20.0	19	0	20.0	17	0
4/17/2009	21.1	16	0	21.1	19	0	21.1	17	0
4/18/2009	21.1	16	0	21.1	19	0	21.1	17	0
4/19/2009	21.7	16	0	21.7	19	0	21.7	17	0
4/20/2009	24.4	16	0	24.4	19	0	24.4	17	0
4/21/2009		16	0		19	0		17	0
4/22/2009	23.9	16	0	23.9	19	0	23.9	17	0
4/23/2009	16.1	16	0	16.1	19	0	16.1	17	0
4/24/2009	24.4	16	0	24.4	19	0	24.4	17	0
4/25/2009	22.2	16	0	22.2	19	0	22.2	17	0
4/26/2009	21.1	16	0	21.1	19	0	21.1	17	0
4/27/2009	21.1	16	0	21.1	19	0	21.1	17	0
4/28/2009	16.1	16	0	16.1	19	0	16.1	17	0
4/29/2009	21.1	16	0	21.1	19	0	21.1	17	0
4/30/2009	23.3	16	0	23.3	19	0	23.3	17	0
5/1/2009	22.2	16	0	22.2	19	0	22.2	17	0
5/2/2009	22.2	16	0	22.2	19	0	22.2	17	0

5/3/2009	22.2	16	0	22.2	19	0	22.2	17	0

Table 7 continued

Date	C4-B Temp	C4-B Alive	C4-B Dead	C5-B Temp	C5-B Alive	C5-B Dead
4/10/2009	21.1	16	0	21.1	19	0
4/11/2009	21.7	16	0	21.7	19	0
4/12/2009	21.7	16	0	21.7	19	0
4/13/2009	20.0	16	0	20.0	18	1
4/14/2009	18.9	16	0	18.9	18	0
4/15/2009	18.3	16	0	18.3	18	0
4/16/2009	20.0	16	0	20.0	18	0
4/17/2009	21.1	16	0	21.1	18	0
4/18/2009	21.1	16	0	21.1	18	0
4/19/2009	21.7	16	0	21.7	18	0
4/20/2009	24.4	16	0	24.4	18	0
4/21/2009	23.9	15	1	23.9	18	0
4/22/2009	23.9	15	0	23.9	18	0
4/23/2009	20.6	15	0	20.6	18	0
4/24/2009	24.4	15	0	24.4	18	0
4/25/2009	22.2	15	0	22.2	18	0
4/26/2009	21.1	15	0	21.1	18	0
4/27/2009	21.1	15	0	21.1	18	0
4/28/2009	20.0	15	0	20.0	18	0
4/29/2009	21.1	15	0	21.1	18	0
4/30/2009	23.3	15	0	23.3	18	0
5/1/2009	22.2	15	0	22.2	18	0
5/2/2009	22.2	15	0	22.2	18	0
5/3/2009	22.2	15	0	22.2	18	0

Table 8. 2009 Woodland Park Zoo early rearing interval, Black River (collected 3/12/2009)

Date	B1 Spot Temp	B1 Alive	B1 Dead	B2 Spot Temp	B2 Alive	B2 Dead	B3 Spot Temp	B3 Alive	B3 Dead	B4 Spot Temp	B4 Alive	B4 Dead
3/13/2009	16.1	39	0	16.1	36	0	16.1	79	0	16.1	104	0
3/14/2009	13.4	39	0	13.4	36	0	13.4	79	0	13.4	104	0
3/15/2009	12.6	39	0	12.6	36	0	12.6	79	0	12.6	104	0
3/16/2009	15.0	33	6	15.0	32	4	15.0	78	1	15.0	98	6
3/17/2009	14.2	33	0	14.2	32	0	14.2	75	3	14.2	98	0
3/18/2009	11.8	31	2	11.8	31	1	11.8	70	5	11.8	74	24
3/19/2009	10.2	25	6	10.2	31	0	10.2	69	1	10.2	74	0

3/20/2009	10.7	3	22	10.7	31	0	10.7	68	1	10.7	73	1
3/21/2009	11.3	2	1	11.3	30	1	11.3	68	0	11.3	73	0
3/22/2009	12.1	2	0	12.1	30	0	12.1	68	0	12.1	73	0
3/23/2009	10.7	2	0	10.7	30	0	10.7	68	0	10.7	73	0
3/24/2009	11.4	2	0	11.4	30	0	11.4	68	0	11.4	73	0
3/25/2009	12.8	2	0	12.8	30	0	12.8	68	0	11.1	73	0
3/26/2009	12.6	2	0	12.6	0	30	12.6	68	0	12.6	73	0
3/27/2009	12.2	2	0				12.2	68	0	12.2	73	0
3/28/2009	11.6	40	0	11.6	41	0	11.6	46	0	11.6	43	0
3/29/2009	12.4	40	0	12.4	41	0	12.4	46	0	12.4	43	0
3/30/2009	14.1	40	0	14.1	41	0	14.1	46	0	14.1	43	0
3/31/2009	12.8	40	0	12.8	41	0	12.8	46	0	12.8	43	0
4/1/2009	12.9	40	0	12.9	41	0	12.9	45	0	12.9	43	0
4/2/2009	12.5	40	0	12.5	41	0	12.5	45	0	12.5	43	0
4/3/2009	13.4	40	0	13.4	41	0	13.4	45	0	13.4	43	0
4/4/2009	13.8	40	0	13.7	41	0	13.8	45	0	13.8	43	0
4/5/2009	14.9	40	0	14.9	41	0	14.9	45	0	14.9	43	0
4/6/2009	15.6	38	2	15.6	41	0	15.6	45	0	15.6	43	0
4/7/2009	16.8	38	0	16.8	41	0	16.8	45	0	16.8	43	0
4/8/2009	17.3	25	0	17.3	20	0	17.3	26	0	17.3	20	0
4/9/2009	16.9	25	0	16.9	20	0	16.9	26	0	16.9	20	0
4/10/2009	13.9	25	0	13.9	20	0	13.9	26	0	13.9	20	0
4/11/2009	16.4	25	0	16.4	20	0	16.4	26	0	16.4	20	0
4/12/2009	17.2	25	0	17.2	20	0	17.2	26	0	17.2	20	0
4/13/2009	15.1	25	0	15.1	20	0	15.1	26	0	15.1	20	0
4/14/2009	15.3	25	0	15.3	20	0	15.3	26	0	15.3	20	0
4/15/2009	16.7	25	0	16.7	20	0	16.7	26	0	16.7	20	0
4/16/2009	19.1	25	0	19.1	20	0	19.1	26	0	19.1	20	0
4/17/2009	16.4	25	0	16.4	20	0	16.3	26	0	16.4	20	0
4/18/2009	18.2	25	0	18.2	20	0	18.2	26	0	18.2	20	0
4/19/2009	17.4	25	0	17.4	20	0	17.4	26	0	17.4	20	0
4/20/2009	17.3	25	0	17.3	20	0	17.3	26	0	17.3	20	0
4/21/2009	18.6	25	0	18.6	20	0	18.6	26	0	18.6	20	0
4/22/2009	15.6	25	0	15.6	20	0	15.6	26	0	15.6	20	0
4/23/2009	10.4	25	0	16.0	20	0	16.0	26	0	16.0	20	0
4/24/2009	17.9	25	0	17.9	20	0	17.9	26	0	17.9	20	0
4/25/2009	15.4	25	0	15.4	20	0	15.4	26	0	15.4	20	0
4/26/2009	15.3	25	0	15.3	20	0	15.3	26	0	15.3	20	0
4/27/2009	16.2	25	0	16.2	20	0	16.2	26	0	16.2	20	0
4/28/2009	15.9	25	0	15.9	20	0	15.9	26	0	15.9	20	0
4/29/2009	16.3	25	0	16.3	20	0	16.3	26	0	16.3	20	0
4/30/2009	14.8	25	0	14.9	20	0	14.8	26	0	14.8	20	0
5/1/2009	17.8	25	0	17.8	20	0	17.8	26	0	17.8	20	0
5/2/2009	17.3	25	0	17.3	20	0	17.3	26	0	17.3	20	0
5/3/2009	17.2	25	0	17.7	20	0	17.1	26	0	17.2	20	0
5/4/2009	18.1	25	0	18.1	20	0	18.1	26	0	18.1	20	0
5/5/2009	15.9	25	0	15.9	20	0	15.9	26	0	15.9	20	0
5/6/2009	16.1	25	0	16.1	20	0	16.1	26	0	16.1	20	0
5/7/2009	15.6	25	0	15.6	20	0	15.6	26	0	15.6	20	0
5/8/2009	17.2	25	0	17.2	20	0	17.2	26	0	17.2	20	0
5/9/2009	16.4	25	0	16.4	20	0	16.4	26	0	16.4	20	0
5/10/2009	16.2	25	0	16.2	20	0	16.2	26	0	16.2	20	0
5/11/2009	17.4	25	0	17.4	20	0	17.4	26	0	17.4	20	0

Table 8 continued

Date	B5 Spot Temp	B5 Alive	B5 Dead	B6 Spot Temp	B6 Alive	B6 Dead	B7 Spot Temp	B7 Alive	B7 Dead	B8 Spot Temp	B8 Alive	B8 Dead
3/13/2009	16.1	54	0	16.9	66.0	0	16.9	37	0	16.9	49	0
3/14/2009	13.4	54	0	13.1	66.0	0	13.1	37	0	13.1	49	0
3/15/2009	12.6	54	0	13.0	66.0	0	13.0	37	0	13.0	49	0
3/16/2009	15.1	52	2	14.4	58.0	8	14.4	29	8	14.4	43	6
3/17/2009	14.2	52	0	14.4	57.0	1	14.4	29	0	14.4	39	4
3/18/2009	11.9	50	2	15.0	54.0	3	15.0	24	5	15.0	33	6
3/19/2009	10.2	35	15	10.5	54.0	0	10.5	8	16	10.2	32	1
3/20/2009	10.7	26	9	10.7	53.0	1	10.7	2	6	11.5	32	0
3/21/2009	11.3	26	0	11.9	53.0	0	11.9	0	2	11.9	32	0
3/22/2009	12.1	26	0	11.1	53.0	0				11.1	32	0
3/23/2009	10.7	26	0	10.5	53.0	0				10.5	32	0
3/24/2009	11.4	24	2	11.3	53.0	0				11.3	32	0
3/25/2009	12.8	24	0	11.5	53.0	0				11.5	32	0
3/26/2009	12.6	0	24	13.2	53.0	0				13.1	32	0
3/27/2009				12.1	53.0	0				12.1	32	0
3/28/2009	11.6	46	0	11.6	46.0	0	11.6	40	0			
3/29/2009	12.4	46	0	12.4	46.0	0	12.4	40	0			
3/30/2009	14.1	46	0	14.1	46.0	0	14.1	40	0			
3/31/2009	12.8	46	0	12.8	46.0	0	12.8	40	0			
4/1/2009	12.9	46	0	12.9	46.0	0	12.9	40	0			
4/2/2009	12.5	46	0	12.5	46.0	0	12.5	40	0			
4/3/2009	13.4	46	0	13.4	46.0	0	13.4	40	0			
4/4/2009	13.8	46	0	13.8	46.0	0	13.8	40	0			
4/5/2009	14.9	46	0	14.9	46.0	0	14.9	40	0			
4/6/2009	15.6	46	0	15.6	46.0	0	15.6	40	0			
4/7/2009	16.8	45	1	16.8	46.0	0	16.8	40	0			
4/8/2009	17.3	20	0									
4/9/2009	16.9	20	0									
4/10/2009	13.9	20	0									
4/11/2009	16.4	20	0									
4/12/2009	17.2	20	0									
4/13/2009	15.1	20	0									
4/14/2009	15.3	20	0									
4/15/2009	16.7	20	0									
4/16/2009	19.1	20	0									
4/17/2009	16.4	20	0									
4/18/2009	18.2	20	0									
4/19/2009	17.4	20	0									
4/20/2009	17.3	20	0									
4/21/2009	18.6	20	0									
4/22/2009	15.6	20	0									
4/23/2009	16.0	20	0									
4/24/2009	17.9	20	0									
4/25/2009	15.4	20	0									
4/26/2009	15.3	20	0									
4/27/2009	16.2	20	0									
4/28/2009	15.9	20	0									
4/29/2009	16.3	20	0									
4/30/2009	14.8	20	0									
5/1/2009	17.8	20	0									

5/2/2009	17.3	20	0									
5/3/2009	17.2	20	0									
5/4/2009	18.1	20	0									
5/5/2009	15.9	20	0									
5/6/2009	16.1	20	0									
5/7/2009	15.6	20	0									
5/8/2009	17.2	20	0									
5/9/2009	16.3	20	0									
5/10/2009	16.2	20	0									

Table 8 continued

Date	B9 Spot Temp	B9 Alive	B9 Dead	B10 Spot Temp	B10 Alive	B10 Dead	B13 Spot Temp	B13 Alive	B13 Dead	B14 Spot Temp	B14 Alive	B14 Dead
3/13/2009	16.9	41	0	16.9	75	0						
3/14/2009	13.1	41	0	13.1	75	0						
3/15/2009	13.0	41	0	13.0	75	0						
3/16/2009	14.4	36	5	14.4	66	9						
3/17/2009	14.4	35	1	14.4	58	8						
3/18/2009	15.0	35	0	15.0	50	8						
3/19/2009	10.2	34	1	10.2	50	0						
3/20/2009	10.9	24	10	10.7	49	1						
3/21/2009	11.9	17	7	11.9	48	1						
3/22/2009	11.1	13	4	11.1	48	0						
3/23/2009	10.5	12	1	10.5	48	0						
3/24/2009	11.3	5	7	11.3	48	0						
3/25/2009	11.5	3	2	11.5	48	0						
3/26/2009	13.1	3	0	13.1	48	0						
3/27/2009	12.1	0	3	12.1	48	0						
3/28/2009												
3/29/2009												
3/30/2009												
3/31/2009												
4/1/2009												
4/2/2009												
4/3/2009												
4/4/2009												
4/5/2009												
4/6/2009												
4/7/2009												
4/8/2009							17.3	20	0	17.3	18	0
4/9/2009							15.7	20	0	15.7	18	0
4/10/2009							16.9	20	0	16.9	18	0
4/11/2009							16.0	20	0	16.0	18	0
4/12/2009							16.4	20	0	16.4	18	0
4/13/2009							9.7	20	0	9.7	18	0
4/14/2009							11.3	20	0	11.3	18	0
4/15/2009							16.2	20	0	16.2	18	0
4/16/2009							17.5	20	0	17.5	18	0
4/17/2009							16.7	20	0	16.7	18	0
4/18/2009							18.6	20	0	18.6	18	0
4/19/2009							17.6	20	0	17.6	18	0
4/20/2009							17.5	20	0	17.5	18	0

4/21/2009							18.3	20	0	18.3	18	0
4/22/2009							15.5	20	0	15.5	18	0
4/23/2009							15.4	20	0	15.4	18	0
4/24/2009							17.6	20	0	17.6	18	0
4/25/2009							15.6	20	0	15.6	18	0
4/26/2009							14.3	20	0	14.3	18	0
4/27/2009							15.6	20	0	15.6	18	0
4/28/2009							15.6	20	0	15.6	18	0
4/29/2009							16.2	20	0	16.2	18	0
4/30/2009							15.8	20	0	15.8	18	0
5/1/2009							17.1	20	0	17.1	18	0
5/2/2009							17.7	20	0	17.7	18	0
5/3/2009							17.3	20	0	17.3	18	0
5/4/2009							18.3	20	0	18.2	18	0
5/5/2009							16.1	20	0	16.1	18	0
5/6/2009							15.7	20	0	15.7	18	0
5/7/2009							15.7	20	0	15.7	18	0
5/8/2009							17.4	20	0	17.4	18	0
5/9/2009							16.8	20	0	16.8	18	0
5/10/2009							16.2	20	0	16.2	18	0
5/11/2009							17.2	20	0	17.2	18	0

Table 8 continued

Date	B15 Spot Temp	B15 Alive	B15 Dead	B16 Spot Temp	B16 Alive	B16 Dead	B17 Spot Temp	B17 Alive	B17 Dead	B18 Spot Temp	B18 Alive	B18 Dead
4/8/2009	17.3	20	0	17.3	21	0	17.3	20	0	17.3	25	0
4/9/2009	15.7	20	0	15.7	21	0	15.7	20	0	15.7	25	0
4/10/2009	16.9	20	0	16.9	21	0	16.9	20	0	16.9	25	0
4/11/2009	16.0	20	0	16.0	21	0	16.0	20	0	16.0	25	0
4/12/2009	16.4	20	0	16.4	21	0	16.4	20	0	16.4	25	0
4/13/2009	9.7	20	0	9.7	21	0	9.7	20	0	9.7	25	0
4/14/2009	11.3	20	0	11.3	21	0	11.3	20	0	11.3	25	0
4/15/2009	16.2	20	0	16.2	21	0	16.2	20	0	16.2	25	0
4/16/2009	17.5	20	0	17.5	21	0	17.5	20	0	17.5	25	0
4/17/2009	16.7	20	0	16.7	21	0	16.7	20	0	16.7	25	0
4/18/2009	18.6	20	0	18.6	21	0	18.6	20	0	18.6	25	0
4/19/2009	17.6	20	0	17.6	21	0	17.6	20	0	17.6	25	0
4/20/2009	17.5	20	0	17.5	21	0	17.5	20	0	17.5	25	0
4/21/2009	18.3	20	0	18.3	21	0	18.3	20	0	18.3	25	0
4/22/2009	15.5	20	0	15.5	21	0	15.5	20	0	15.5	25	0
4/23/2009	15.4	20	0	15.4	21	0	15.4	20	0	15.4	25	0
4/24/2009	17.6	20	0	17.6	21	0	17.6	20	0	17.6	25	0
4/25/2009	15.6	20	0	15.6	21	0	15.6	20	0	15.6	25	0
4/26/2009	14.3	20	0	14.3	21	0	14.3	20	0	14.3	25	0
4/27/2009	15.6	20	0	15.6	21	0	15.6	20	0	15.6	25	0
4/28/2009	15.6	20	0	15.6	21	0	15.6	20	0	15.6	25	0
4/29/2009	16.2	20	0	16.2	21	0	16.2	20	0	16.2	25	0
4/30/2009	15.8	20	0	15.8	21	0	15.8	20	0	15.8	25	0
5/1/2009	17.1	20	0	17.1	21	0	17.1	20	0	17.1	25	0
5/2/2009	17.7	20	0	17.7	21	0	17.7	20	0	17.7	25	0
5/3/2009	17.3	20	0	17.3	21	0	17.3	20	0	17.3	25	0
5/4/2009	18.2	20	0	18.1	21	0	18.1	20	0	18.2	25	0

5/5/2009	16.1	20	0	16.1	21	0	16.1	20	0	16.1	25	0
5/6/2009	15.7	20	0	15.7	21	0	15.7	20	0	15.7	25	0
5/7/2009	15.7	20	0	15.7	21	0	15.7	20	0	15.7	25	0
5/8/2009	17.4	20	0	17.4	21	0	17.4	20	0	17.4	25	0
5/9/2009	16.8	20	0	16.8	21	0	16.8	20	0	16.8	25	0
5/10/2009	16.2	20	0	16.2	21	0	16.2	20	0	16.2	25	0
5/11/2009	17.2	20	0	17.2	21	0	17.2	20	0	17.2	25	0

Table 8 continued

Date	B19 Spot Temp	B19 Alive	B19 Dead	B20 Spot Temp	B20 Alive	B20 Dead	B21 Spot Temp	B21 Alive	B21 Dead
4/8/2009	17.3	20	0	17.3	19	0	17.3	20	0
4/9/2009	15.7	20	0	15.7	19	0	15.7	20	0
4/10/2009	16.9	20	0	16.9	19	0	16.9	20	0
4/11/2009	16.0	20	0	16.0	19	0	16.0	20	0
4/12/2009	16.4	20	0	16.4	19	0	16.4	20	0
4/13/2009	9.7	20	0	9.7	19	0	9.7	20	0
4/14/2009	11.3	20	0	11.3	19	0	11.3	20	0
4/15/2009	16.2	20	0	16.2	19	0	16.2	20	0
4/16/2009	17.5	20	0	17.5	19	0	17.5	20	0
4/17/2009	16.7	20	0	16.7	19	0	16.7	20	0
4/18/2009	18.6	20	0	18.6	19	0	18.6	20	0
4/19/2009	17.6	20	0	17.6	19	0	17.6	20	0
4/20/2009	17.5	20	0	17.5	19	0	17.5	20	0
4/21/2009	18.3	20	0	18.3	19	0	18.3	20	0
4/22/2009	15.5	20	0	15.5	19	0	15.5	20	0
4/23/2009	15.4	20	0	15.4	19	0	15.4	20	0
4/24/2009	17.6	20	0	17.6	19	0	17.6	20	0
4/25/2009	15.6	20	0	15.6	19	0	15.6	20	0
4/26/2009	14.3	20	0	14.3	19	0	14.3	20	0
4/27/2009	15.6	20	0	15.6	19	0	15.6	20	0
4/28/2009	15.6	20	0	15.6	19	0	15.6	20	0
4/29/2009	16.2	20	0	16.2	19	0	16.2	20	0
4/30/2009	15.8	20	0	15.8	19	0	15.8	20	0
5/1/2009	17.1	20	0	17.1	19	0	17.1	20	0
5/2/2009	17.7	20	0	17.7	19	0	17.7	20	0
5/3/2009	17.3	20	0	17.3	19	0	17.3	20	0
5/4/2009	18.2	20	0	18.2	19	0	18.2	20	0
5/5/2009	16.1	20	0	16.1	19	0	16.1	20	0
5/6/2009	15.7	20	0	15.7	19	0	15.7	20	0
5/7/2009	15.7	20	0	15.7	19	0	15.7	20	0
5/8/2009	17.4	20	0	17.4	19	0	17.4	20	0
5/9/2009	16.8	20	0	16.8	19	0	16.9	20	0
5/10/2009	16.2	20	0	16.2	19	0	16.2	20	0
5/11/2009	17.2	20	0	17.2	19	0	17.2	20	0

Table 9. 2009 Woodland Park Zoo early rearing interval, Black River (collected 3/30/2009)

Date	B6 Spot Temp	B6 Alive	B6 Dead	B7 Spot Temp	B7 Alive	B7 Dead	B8 Spot Temp	B8 Alive	B8 Dead	B9 Spot Temp	B9 Alive	B9 Dead
3/31/2009							12.4	40	0	12.4	42	0

4/1/2009							12.7	40	0	12.7	42	0
4/2/2009							12.2	40	0	12.2	42	0
4/3/2009							13.0	40	0	13.0	42	0
4/4/2009							13.3	40	0	13.3	40	2
4/5/2009							14.2	40	0	14.2	40	0
4/6/2009							14.9	40	0	14.9	40	0
4/7/2009							17.1	40	0	17.1	40	0
4/8/2009	16.2	20	0	16.2	20	0	16.2	20	0	16.2	20	0
4/9/2009	16.9	20	0	16.9	20	0	16.9	20	0	16.9	20	0
4/10/2009	13.9	20	0	13.9	20	0	13.9	20	0	13.9	20	0
4/11/2009	16.4	20	0	16.4	20	0	16.4	20	0	16.4	20	0
4/12/2009	17.2	20	0	17.2	20	0	17.2	20	0	17.2	20	0
4/13/2009	15.1	20	0	15.1	20	0	15.1	20	0	15.1	20	0
4/14/2009	15.3	20	0	15.3	20	0	15.3	20	0	15.1	20	0
4/15/2009	16.7	20	0	16.7	20	0	16.7	20	0	16.7	20	0
4/16/2009	19.1	20	0	19.1	20	0	19.1	20	0	19.1	20	0
4/17/2009	16.4	20	0	16.4	20	0	16.4	20	0	16.4	20	0
4/18/2009	18.2	20	0	18.2	20	0	18.2	20	0	18.2	20	0
4/19/2009	17.4	20	0	17.4	20	0	17.4	20	0	17.4	20	0
4/20/2009	17.3	20	0	17.3	20	0	17.3	19	1	17.3	20	0
4/21/2009	18.6	20	0	18.6	20	0	18.6	19	0	18.6	20	0
4/22/2009	15.6	20	0	15.6	20	0	15.6	19	0	15.6	20	0
4/23/2009	16.0	20	0	16.0	20	0	16.0	19	0	16.0	20	0
4/24/2009	17.9	20	0	17.9	20	0	17.9	19	0	17.9	20	0
4/25/2009	15.4	20	0	15.1	20	0	15.4	19	0	15.4	20	0
4/26/2009	15.3	20	0	15.3	20	0	15.3	19	0	15.3	20	0
4/27/2009	16.2	20	0	16.2	20	0	16.2	19	0	16.2	20	0
4/28/2009	15.9	20	0	15.9	20	0	15.9	19	0	15.9	20	0
4/29/2009	16.3	20	0	16.3	20	0	16.3	19	0	16.3	20	0
4/30/2009	14.8	20	0	14.8	20	0	14.8	19	0	14.8	20	0
5/1/2009	17.8	20	0	17.8	20	0	17.8	19	0	17.8	20	0
5/2/2009	17.3	20	0	17.3	20	0	17.3	19	0	17.3	20	0
5/3/2009	17.1	20	0	17.2	20	0	17.2	19	0	17.2	20	0
5/4/2009	18.1	20	0	18.1	20	0	18.1	19	0	17.6	20	0
5/5/2009	15.9	20	0	15.9	20	0	15.9	19	0	15.9	20	0
5/6/2009	16.1	20	0	16.1	20	0	16.1	19	0	16.1	20	0
5/7/2009	15.6	20	0	15.6	20	0	15.6	19	0	15.6	20	0
5/8/2009	17.2	20	0	17.2	20	0	17.2	19	0	17.2	20	0
5/9/2009	16.3	20	0	16.3	20	0	16.3	19	0	16.3	20	0
5/10/2009	16.2	20	0	16.2	20	0	16.2	19	0	16.2	20	0
5/11/2009	17.4	20	0	17.4	20	0	17.4	19	0	17.4	20	0

Table 9 continued

Date	B10 Spot Temp	B10 Alive	B10 Dead	B11 Spot Temp	B11 Alive	B11 Dead	B12 Spot Temp	B12 Alive	B12 Dead
3/31/2009	12.5	40	0				12.8	6	0
4/1/2009	12.7	40	0				12.9	6	0
4/2/2009	12.2	40	0				12.5	5	1
4/3/2009	13.0	40	0				13.4	4	1
4/4/2009	13.3	39	1				13.8	4	0
4/5/2009	14.2	39	0				14.9	4	0
4/6/2009	14.9	39	0				15.6	3	1

4/7/2009	17.1	39	0				16.8	3	0
4/8/2009	16.2	19	0	16.2	20	0	17.3	2	1
4/9/2009	16.9	19	0	15.7	20	0	15.7	2	0
4/10/2009	14.0	19	0	16.9	20	0	16.9	2	0
4/11/2009	16.2	19	0	16.0	20	0	16.0	2	0
4/12/2009	17.2	19	0	16.4	20	0	16.4	2	0
4/13/2009	15.1	19	0	9.7	20	0	9.7	2	0
4/14/2009	15.3	19	0	11.3	20	0	15.3	2	0
4/15/2009	16.7	19	0	16.2	20	0	16.2	2	0
4/16/2009	19.1	19	0	17.5	20	0	17.5	2	0
4/17/2009	16.4	19	0	16.7	20	0	16.7	2	0
4/18/2009	18.2	19	0	18.6	20	0	18.6	2	0
4/19/2009	17.4	19	0	17.6	20	0	17.6	2	0
4/20/2009	17.3	19	0	17.5	20	0	17.5	2	0
4/21/2009	18.6	19	0	18.3	20	0	18.3	2	0
4/22/2009	15.6	19	0	15.5	20	0	15.5	2	0
4/23/2009	16.0	19	0	15.4	20	0	15.4	2	0
4/24/2009	17.9	19	0	17.6	20	0	17.6	2	0
4/25/2009	15.4	19	0	15.6	20	0	15.6	2	0
4/26/2009	15.3	19	0	14.3	20	0	14.3	2	0
4/27/2009	16.2	19	0	15.6	20	0	15.6	2	0
4/28/2009	15.9	19	0	15.6	20	0	15.6	2	0
4/29/2009	16.3	19	0	16.2	20	0	16.2	2	0
4/30/2009	14.8	19	0	15.8	20	0	15.8	2	0
5/1/2009	17.8	19	0	17.1	20	0	17.1	2	0
5/2/2009	17.3	19	0	17.7	20	0	17.7	2	0
5/3/2009	17.2	19	0	17.3	20	0	17.3	2	0
5/4/2009	18.2	19	0	18.2	20	0	19.3	2	0
5/5/2009	15.9	19	0	16.1	20	0	16.1	2	0
5/6/2009	16.1	19	0	15.7	20	0	15.7	2	0
5/7/2009	15.7	19	0	15.7	20	0	15.7	2	0
5/8/2009	17.2	19	0	17.4	20	0	17.4	2	0
5/9/2009	16.3	19	0	16.8	20	0	16.8	2	0
5/10/2009	16.2	19	0	16.2	20	0	16.2	2	0
5/11/2009	17.4	19	0	17.2	20	0	17.2	2	0

Table 10 2009 Woodland Park Zoo early rearing interval notes, Black River

Eggs Collected March 12, 2009

B1	3/12/2009	39 to start
B1	3/28/2009	Combined B8 with B1
B1	4/8/2009	Divided 20/tub into B13 (20) & B14 (18)
B1	4/8/2009	25 from B5
B2	3/26/2009	All Deceased
B2	3/28/2009	40 from B3
B2	4/8/2009	Divided 20/tub into B15 & B16
B2	4/8/2009	20 from B6
B3	3/28/2009	Divided into B2 & B3
B3	3/28/2009	46 from B3 & B10

B3	4/8/2009	Divided 20/tub into B17 & B18
B3	4/8/2009	26 from B6
B4	3/28/2009	Divided into B4 & B5
B4	3/28/2009	43 left in B4
B4	4/8/2009	Divided 20/tub into B19 & B20
B4	4/8/2009	20 from B7
B5	3/26/2009	All Deceased
B5	3/28/2009	46 from B4 & B6
B5	4/8/2009	Divided 20/tub into B21 & B1
B5	4/8/2009	20 from B7
B6	3/28/2009	Divided into B5 & B6
B6	3/38/2009	46 left in B6
B6	4/8/2009	Divided 20/tub into B2 & B3
B7	3/21/2009	All Deceased
B7	3/28/2009	40 from B10
B7	4/8/2009	Divided 20/tub into B4 & B5
B8	3/28/2009	moved into B1
B9	3/27/2009	All Deceased
B10	3/28/2009	Divided into B3 & B7
B13	4/8/2009	20 from B1
B14	4/8/2009	18 from B1
B15	4/8/2009	20 from B2
B16	4/8/2009	21 from B2
B17	4/8/2009	20 from B3
B18	4/8/2009	25 from B3
B19	4/8/2009	20 from B4
B20	4/8/2009	19 from B4
B21	4/8/2009	20 from B5

Eggs Collected March 30, 2009

B6	4/8/2009	20 from B8
B7	4/8/2009	20 from B8
B8	3/31/2009	40 to B8
B8	4/8/2009	Divided 20/tub into B6 & B7
B8	4/8/2009	20 from B9
B9	3/31/2009	41 to B9
B9	4/8/2009	Divided 20/tub into B8 & B9
B9	4/8/2019	20 left in B9
B10	3/31/2009	42 to B10
B10	4/8/2009	Divided 20/tub into B10 & B11
B10	4/8/2009	19 left in B10

B11	4/8/2009	20 from B10
B12	4/8/2009	6 to B12

Table 11 2009 Woodland Park Zoo early rearing interval, Conboy Lake (collected 3/31/2009)

Date	C1 Spot Temp	C1 Alive	C1 Dead	C2 Spot Temp	C2 Alive	C2 Dead	C3 Spot Temp	C3 Alive	C3 Dead	C4 Spot Temp	C4 Alive	C4 Dead
3/31/2009	17.6	40	0	17.6	40	0	17.6	40	0	17.6	40	0
4/1/2009	13.2	40	0	13.2	40	0	13.2	40	0	13.2	40	0
4/2/2009	16.9	36	4	16.9	23	17	16.9	35	5	16.9	34	6

Date	C5 Spot Temp	C5 Alive	C5 Dead	C6 Spot Temp	C6 Alive	C6 Dead	C7 Temp	C7 Alive	C7 Dead	C8 Spot Temp	C8 Alive	C8 Dead
3/31/2009	17.6	40	0	17.6	40	0	17.6	40	0	17.6	40	0
4/1/2009	13.2	40	0	13.8	40	0	13.8	40	0	13.8	40	0
4/2/2009	16.9	27	13	17.8	0	40	17.8	0	40	17.8	0	40

Date	C9 Spot Temp	C9 Alive	C9 Dead	C10 Spot Temp	C10 Alive	C10 Dead
3/31/2009	17.6	40	0	17.6	40	0
4/1/2009	13.8	40	0	13.8	40	0
4/2/2009	17.8	0	40	17.8	0	40

Date	C11 Spot Temp	C11 Alive	C11 Dead	C12 Spot Temp	C12 Alive	C12 Dead	C13 Spot Temp	C13 Alive	C13 Dead	C14 Spot Temp	C14 Alive	C14 Dead
4/3/2009	18.7	35	0	18.7	37	3	18.7	40	0	18.7	38	2
4/4/2009	14.8	29	6	14.8	32	5	14.8	34	6	14.8	33	5
4/5/2009	19.5	26	3	19.5	29	3	19.5	33	1	19.5	30	3
4/6/2009	20.2	23	3	20.2	24	5	20.2	27	6	20.2	27	3
4/7/2009	19.3	20	3	19.3	21	3	19.3	24	3	18.9	24	3
4/8/2009	17.0	20	0	17.0	21	0	17.0	24	0	17.0	24	0
4/9/2009	18.5	20	0	18.2	20	1	18.2	24	0	18.2	24	0
4/10/2009	15.6	20	0	15.3	20	0	15.3	24	0	15.3	23	1
4/11/2009	14.3	20	0	14.3	19	1	14.3	24	0	14.3	22	1
4/12/2009	16.1	18	2	15.6	17	2	15.6	23	1	15.6	21	1
4/13/2009	14.1	18	0	14.7	16	1	14.7	23	0	14.7	20	1
4/14/2009	15.4	18	0	14.7	15	1	14.7	23	0	14.7	20	0
4/15/2009	17.4	18	0	16.9	14	1	17.4	23	0	17.4	20	0
4/16/2009	17.9	18	0	16.3	13	1	17.9	23	0	17.9	20	0
4/17/2009	18.2	18	0	17.7	12	1	18.2	23	0	18.2	20	0
4/18/2009	19.6	18	0	19.6	12	0	19.6	23	0	19.6	20	0

4/19/2009	18.1	18	0	18.6	12	0	18.6	23	0	18.6	20	0
4/20/2009	17.5	17	1	18.1	12	0	18.1	23	0	18.1	20	0
4/21/2009	19.8	13	4	18.9	8	4	18.9	23	0	18.9	20	0
4/22/2009	19.3	13	0	19.7	8	0	19.7	22	1	19.7	19	1
4/23/2009	21.1	13	0	20.1	8	0	20.1	22	0	20.1	19	0
4/24/2009	20.2	13	0	20.1	8	0	20.1	22	0	20.1	19	0
4/25/2009	19.0	13	0	18.7	8	0	18.7	22	0	18.7	19	0
4/26/2009	16.3	13	0	16.9	8	0	16.9	22	0	16.9	19	0
4/27/2009	16.9	13	0	17.7	8	0	17.7	22	0	17.7	19	0
4/28/2009	20.4	13	0	20.3	8	0	20.3	22	0	20.3	19	0
4/29/2009	20.6	13	0	19.9	8	0	19.9	22	0	19.9	19	0
4/30/2009	21.7	13	0	20.4	8	0	20.4	22	0	20.4	19	0
5/1/2009	21.6	13	0	20.7	8	0	20.7	22	0	20.7	19	0
5/2/2009	21.2	13	0	20.5	8	0	20.5	21	1	20.5	19	0
5/3/2009	18.1	13	0	19.1	8	0	19.1	21	0	19.1	18	1
5/4/2009	18.9	13	0	20.2	8	0	20.2	21	0	20.2	18	0
5/5/2009	17.3	13	0	17.8	8	0	17.3	21	0	17.8	18	0
5/6/2009	18.2	13	0	18.4	8	0	18.4	21	0	18.4	18	0
5/7/2009	18.8	13	0	18.3	8	0	18.3	21	0	18.3	18	0
5/8/2009	19.6	13	0	19.9	8	0	19.9	21	0	19.9	18	0
5/9/2009	17.6	13	0	17.1	8	0	17.1	21	0	17.1	18	0
5/10/2009	16.8	13	0	16.9	8	0	16.9	21	0	16.9	18	0
5/11/2009	18.7	13	0	19.1	8	0	19.1	21	0	19.1	18	0

Table 12. Woodland Park Zoo early rearing interval, Conboy Lake (collected 4/7/2009)

Date	C1 Spot Temp	C1 Alive	C1 Dead	C2 Spot Temp	C2 Alive	C2 Dead	C3 Spot Temp	C3 Alive	C3 Dead	C4 Spot Temp	C4 Alive	C4 Dead
4/7/2009	17.7	20	0	17.7	20	0	17.7	20	0	17.7	20	0
4/8/2009	17.1	20	0	17.1	20	0	17.1	20	0	17.1	20	0
4/9/2009	18.5	20	0	18.5	20	0	18.5	20	0	18.5	20	0
4/10/2009	15.6	20	0	15.7	20	0	15.7	20	0	15.7	20	0
4/11/2009	14.6	20	0	14.6	20	0	14.6	20	0	14.6	20	0
4/12/2009	16.1	20	0	16.1	20	0	16.1	20	0	16.1	20	0
4/13/2009	14.1	20	0	14.1	20	0	14.1	20	0	14.1	20	0
4/14/2009	15.4	20	0	15.4	20	0	15.4	20	0	15.4	20	0
4/15/2009	17.0	20	0	17.0	20	0	17.0	20	0	17.0	20	0
4/16/2009	17.9	20	0	17.9	20	0	17.9	20	0	17.9	20	0
4/17/2009	17.7	20	0	17.7	20	0	17.7	20	0	17.7	20	0
4/18/2009	19.2	20	0	19.2	20	0	19.2	20	0	19.2	20	0
4/19/2009	18.1	20	0	18.1	20	0	18.1	20	0	18.1	20	0
4/20/2009	17.5	20	0	17.5	20	0	17.5	20	0	17.5	20	0
4/21/2009	19.8	19	1	19.8	20	0	19.8	20	0	19.8	20	0
4/22/2009	19.3	19	0	19.3	20	0	19.3	20	0	19.3	20	0
4/23/2009	21.1	19	0	15.6	20	0	15.6	20	0	15.6	20	0
4/24/2009	20.2	19	0	20.2	20	0	20.2	20	0	20.2	20	0
4/25/2009	19.0	19	0	19.0	20	0	19.0	20	0	19.0	20	0
4/26/2009	16.3	19	0	16.3	20	0	16.3	20	0	16.3	20	0
4/27/2009	16.9	19	0	16.9	20	0	16.9	20	0	16.9	20	0
4/28/2009	20.4	19	0	20.4	20	0	20.4	20	0	20.4	20	0

4/29/2009	20.6	19	0	20.6	20	0	20.6	20	0	20.6	20	0
4/30/2009	21.7	19	0	21.7	20	0	21.7	20	0	21.7	20	0
5/1/2009	21.6	19	0	21.6	20	0	21.6	20	0	21.6	20	0
5/2/2009	21.2	19	0	21.2	20	0	21.2	20	0	21.2	20	0
5/3/2009	18.1	19	0	18.1	20	0	18.1	20	0	18.1	20	0
5/4/2009	19.1	19	0	19.1	20	0	19.1	20	0	19.1	20	0
5/5/2009	17.3	19	0	17.3	20	0	17.3	20	0	17.3	20	0
5/6/2009	18.2	19	0	18.2	20	0	18.2	20	0	18.2	20	0
5/7/2009	18.8	19	0	18.8	20	0	18.8	20	0	18.8	20	0
5/8/2009	19.6	19	0	19.6	20	0	19.6	20	0	19.6	20	0
5/9/2009	17.7	19	0	17.7	20	0	17.7	20	0	17.7	20	0
5/10/2009	16.8	19	0	16.8	20	0	16.8	20	0	16.8	20	0
5/11/2009	18.7	19	0	18.7	20	0	18.7	20	0	18.7	20	0

Table 13 continued

Date	C5 Spot Temp	C5 Alive	C5 Dead	C6 Spot Temp	C6 Alive	C6 Dead	C7 Temp	C7 Alive	C7 Dead	C8 Spot Temp	C8 Alive	C8 Dead
4/7/2009	17.7	20	0	17.7	20	0	17.7	20	0	18.0	20	0
4/8/2009	17.1	20	0	17.1	20	0	17.1	20	0	17.3	20	0
4/9/2009	18.5	20	0	18.5	20	0	18.5	20	0	18.2	14	6
4/10/2009	15.7	20	0	15.6	20	0	15.7	20	0	15.3	10	4
4/11/2009	14.6	20	0	14.6	20	0	14.6	20	0	14.3	9	1
4/12/2009	16.1	20	0	16.1	20	0	16.1	20	0	15.6	7	2
4/13/2009	14.1	20	0	14.1	20	0	14.1	20	0	14.7	7	0
4/14/2009	15.4	20	0	15.4	20	0	15.4	20	0	14.8	7	0
4/15/2009	17.0	20	0	17.0	20	0	17.0	20	0	17.4	7	0
4/16/2009	17.9	20	0	17.9	20	0	17.9	20	0	17.9	7	0
4/17/2009	17.7	20	0	17.7	20	0	17.7	20	0	18.2	7	0
4/18/2009	19.2	20	0	19.2	20	0	19.2	20	0	19.6	6	1
4/19/2009	18.1	20	0	18.1	20	0	18.1	19	1	18.6	6	0
4/20/2009	17.5	20	0	17.5	20	0	17.5	19	0	18.1	5	1
4/21/2009	19.8	20	0	19.8	20	0	19.8	19	0	18.9	4	1
4/22/2009	19.3	20	0	19.3	20	0	19.3	19	0	19.7	3	1
4/23/2009	15.6	20	0	21.1	20	0	21.1	19	0	20.1	3	0
4/24/2009	20.2	20	0	20.2	20	0	20.2	19	0	20.1	3	0
4/25/2009	19.0	20	0	19.0	20	0	19.0	19	0	18.7	3	0
4/26/2009	16.3	20	0	16.3	20	0	16.3	19	0	16.9	3	0
4/27/2009	16.9	20	0	16.9	20	0	16.9	19	0	17.7	3	0
4/28/2009	20.4	20	0	20.4	20	0	20.4	19	0	20.3	3	0
4/29/2009	20.6	20	0	20.6	20	0	20.6	19	0	19.9	3	0
4/30/2009	21.7	20	0	21.7	20	0	21.7	19	0	20.4	3	0
5/1/2009	21.6	20	0	21.6	20	0	21.6	19	0	20.7	3	0
5/2/2009	21.2	20	0	21.2	20	0	21.2	19	0	20.5	3	0
5/3/2009	18.1	20	0	18.1	20	0	18.1	19	0	19.0	3	0
5/4/2009	19.1	20	0	19.1	20	0	19.1	19	0	20.2	2	1
5/5/2009	17.3	20	0	17.3	20	0	17.3	19	0	17.8	2	0
5/6/2009	18.2	20	0	18.2	20	0	18.2	19	0	18.4	2	0
5/7/2009	18.8	20	0	18.8	20	0	18.8	19	0	17.8	2	0
5/8/2009	19.6	20	0	19.6	20	0	19.6	19	0	19.9	2	0
5/9/2009	17.7	20	0	17.7	20	0	17.7	19	0	16.9	2	0
5/10/2009	16.8	20	0	16.8	20	0	16.8	19	0	16.9	2	0
5/11/2009	18.7	20	0	18.7	20	0	18.7	19	0	19.1	2	0

Table 13 continued

Date	C9 Spot Temp	C9 Alive	C9 Dead	C10 Spot Temp	C10 Alive	C10 Dead	C15 Spot Temp	C15 Alive	C15 Dead	C16 Spot Temp	C16 Alive	C16 Dead
4/7/2009	18.0	20	0	18.0	20	0	18.0	20	0	18.0	20	0
4/8/2009	17.3	20	0	17.3	20	0	17.3	20	0	17.3	20	0
4/9/2009	18.2	18	2	18.2	20	0	18.2	17	3	18.2	19	1
4/10/2009	15.3	17	1	15.3	15	5	15.3	11	6	15.3	18	1
4/11/2009	14.3	15	2	14.3	11	4	14.3	11	0	14.3	16	2
4/12/2009	15.6	13	2	15.6	10	1	15.6	11	0	15.6	16	0
4/13/2009	14.7	13	0	14.7	10	0	14.7	11	0	14.7	16	0
4/14/2009	14.8	12	1	14.8	10	0	14.8	10	1	14.8	16	0
4/15/2009	17.4	12	0	17.4	10	0	17.4	10	0	17.4	16	0
4/16/2009	17.9	12	0	17.9	10	0	17.9	10	0	17.9	16	0
4/17/2009	18.2	12	0	18.2	10	0	18.2	10	0	18.2	16	0
4/18/2009	19.6	12	0	19.6	10	0	19.6	10	0	19.6	16	0
4/19/2009	18.6	12	0	18.6	10	0	18.6	9	1	18.6	16	0
4/20/2009	18.1	12	0	18.1	10	0	18.1	6	3	18.1	16	0
4/21/2009	18.9	11	1	18.9	10	0	18.9	6	0	18.9	16	0
4/22/2009	19.7	10	1	19.7	7	3	19.7	6	0	19.7	16	0
4/23/2009	20.1	9	1	20.1	7	0	20.1	6	0	20.1	16	0
4/24/2009	20.1	9	0	20.1	7	0	20.1	6	0	20.1	16	0
4/25/2009	18.7	9	0	18.7	7	0	18.7	6	0	18.7	16	0
4/26/2009	16.9	9	0	16.9	7	0	16.9	6	0	16.9	16	0
4/27/2009	17.7	9	0	17.7	7	0	17.7	6	0	17.7	16	0
4/28/2009	20.3	9	0	20.3	7	0	20.3	5	1	20.3	16	0
4/29/2009	19.9	9	0	19.9	7	0	19.9	5	0	19.9	16	0
4/30/2009	20.4	9	0	20.4	7	0	20.4	5	0	20.4	16	0
5/1/2009	20.7	9	0	20.7	7	0	20.7	5	0	20.7	16	0
5/2/2009	20.5	9	0	20.5	7	0	20.5	5	0	20.5	16	0
5/3/2009	19.0	9	0	19.1	7	0	19.1	5	0	19.1	16	0
5/4/2009	20.2	9	0	20.2	7	0	20.2	3	2	20.2	16	0
5/5/2009	17.8	9	0	17.8	7	0	17.8	3	0	17.8	16	0
5/6/2009	18.4	9	0	18.4	7	0	18.4	3	0	18.4	16	0
5/7/2009	17.8	9	0	18.3	7	0	18.3	3	0	18.3	16	0
5/8/2009	19.9	9	0	19.9	7	0	19.9	3	0	19.9	16	0
5/9/2009	16.9	9	0	16.9	7	0	17.1	3	0	17.1	16	0
5/10/2009	16.9	9	0	16.9	7	0	16.9	3	0	16.9	16	0
5/11/2009	19.1	9	0	19.1	7	0	19.1	3	0	19.1	16	0

Table 14. 2009 Woodland Park Zoo early rearing interval, Conboy Lake notes

C1	3/31/2009	40 from 3/30 batch
C1	4/2/2009	36 to C13 (19) & C14 (17)
C1	4/7/2009	20 from 4/7 batch

C2	3/31/2009	40 from 3/30 batch
C2	4/2/2009	23 to C14
C2	4/7/2009	20 from 4/7 batch
C3	3/31/2009	40 from 3/30 batch
C3	4/2/2009	35 to C12 (14) & C13 (21)
C3	4/7/2009	20 from 4/7 batch
C4	3/31/2009	40 from 3/30 batch
C4	4/2/2009	34 to C11 (8) & C12 (26)
C4	4/7/2009	20 from 4/7 batch
C5	3/31/2009	40 from 3/30 batch
C5	4/2/2009	27 to C11
C5	4/7/2009	20 from 4/7 batch
C6	3/31/2009	40 from 3/30 batch
C6	4/2/2009	All Deceased
C6	4/7/2009	20 from 4/7 batch
C7	3/31/2009	40 from 3/30 batch
C7	4/2/2009	All Deceased
C7	4/7/2009	20 from 4/7 batch
C8	3/31/2009	40 from 3/30 batch
C8	4/2/2009	All Deceased
C8	4/7/2009	20 from 4/7 batch
C9	3/31/2009	40 from 3/30 batch
C9	4/2/2009	All Deceased
C9	4/7/2009	20 from 4/7 batch
C10	3/31/2009	40 from 3/30 batch
C10	4/2/2009	All Deceased
C10	4/7/2009	20 from 4/7 batch
C11	4/3/2009	35 from C4 (8) and C5 (27)
C12	4/3/2009	40 from C4 (26) & C3 (14)
C13	4/3/2009	40 from C1 (19) & C3 (21)
C14	4/3/2009	40 from C1 (17) & C2 (23)
C15	4/7/2009	20 from 4/7 batch
C16	4/7/2009	20 from 4/7 batch

Table 15 Cedar Creek Corrections Center early rearing interval, Conboy Lake (collected 4/8/2009)

Date	C1 Temp	C1 Alive	C1 Dead	C2 Temp	C2 Alive	C2 Dead	C3 Temp	C3 Alive	C3 Dead	C4 Temp	C4 Alive	C4 Dead

4/8/2009	23.6	20	0	23.6	20	0	23.6	19	1	23.6	19	1
4/9/2009	25.0	20	0	25.0	20	0	25.0	19	0	25.0	19	0
4/10/2009	24.4	20	0	24.4	20	0	24.4	19	0	24.4	19	0
4/11/2009	22.6	20	0	22.6	20	0	22.6	19	0	22.6	19	0
4/12/2009	22.9	20	0	22.9	20	0	22.9	19	0	22.9	19	0
4/13/2009	20.3	20	0	20.3	20	0	20.3	19	0	20.3	19	0
4/14/2009	21.9	20	0	21.9	20	0	21.9	19	0	21.9	19	0
4/15/2009	22.6	20	0	22.6	20	0	22.6	19	0	22.6	18	1
4/16/2009	23.6	20	0	23.6	20	0	23.6	19	0	23.6	18	0
4/17/2009	24.0	20	0	24.0	20	0	24.0	19	0	24.0	18	0
4/18/2009	23.6	20	0	23.6	20	0	23.6	19	0	23.6	18	0
4/19/2009	22.6	20	0	22.6	20	0	22.6	19	0	22.6	18	0
4/20/2009	23.4	20	0	23.4	20	0	23.4	19	0	23.4	18	0
4/21/2009	17.9	20	0	17.9	20	0	17.9	19	0	17.9	18	0
4/22/2009	25.4	20	0	25.4	20	0	25.4	19	0	25.4	18	0
4/23/2009	24.6	20	0	24.6	20	0	24.6	19	0	24.6	18	0
4/24/2009	25.3	20	0	25.3	20	0	25.3	19	0	25.3	18	0
4/25/2009	22.4	20	0	22.4	20	0	22.4	19	0	22.4	18	0
4/26/2009	25.0	20	0	25.0	20	0	25.0	19	0	25.0	18	0
4/27/2009	25.0	20	0	25.0	20	0	25.0	19	0	25.0	18	0
4/28/2009	25.8	20	0	25.8	20	0	25.8	19	0	25.8	18	0
4/29/2009	25.6	20	0	25.6	20	0	25.6	19	0	25.6	18	0
4/30/2009	26.7	20	0	26.7	20	0	26.7	19	0	26.7	18	0

Appendix E: Table 1 2008 Northwest Trek later rearing interval, Black River

Date	B-T1 Temp	B-T1 Dead	B-T1 Total Pop	B-T2 Temp	B-T2 Dead	B-T2 Total Pop
5/15/2008	23.0	0	138	22.6	0	151
5/16/2008	22.6	0	138	23.5	0	151
5/17/2008	24.8	0	138	23.1	0	151
5/18/2008	26.5	0	138	25.6	0	151
5/19/2008	21.4	0	138	22.5	0	151
5/20/2008	23.4	0	138	22.1	0	151
5/21/2008	21.1	0	138	19.7	0	151
5/22/2008	19.6	0	138	19.6	0	151
5/23/2008	19.6	0	138	19.6	0	151
5/24/2008	22.2	0	138	22.4	0	151
5/25/2008	22.3	0	138	27.0	0	151
5/26/2008	20.1	0	138	19.1	0	151
5/27/2008	20.0	0	138	19.1	0	151
5/28/2008	25.4	0	138	19.0	0	151
5/29/2008	21.2	0	138	21.6	0	151
5/30/2008	21.7	0	138	21.9	0	151
5/31/2008	22.5	0	138	21.5	0	151
6/1/2008	21.3	0	138	23.1	0	151
6/2/2008	20.5	0	138	18.0	0	151
6/3/2008	19.8	0	138	18.0	0	151
6/4/2008	21.1	0	138	20.5	0	151
6/5/2008	22.0	0	138	21.8	0	151
6/6/2008	20.6	0	138	21.3	0	151
6/7/2008	21.2	0	138	21.3	0	151
6/8/2008	21.1	0	138	21.3	0	151
6/9/2008	21.1	0	138	21.3	0	151
6/10/2008	-	0	138	19.3	0	151
6/11/2008	-	0	138	21.8	0	151
6/12/2008	20.0	0	138	21.8	0	151
6/13/2008	20.9	0	138	23.2	0	151
6/14/2008	18.1	0	138	19.8	0	151

6/15/2008	19.5	0	138	19.7	0	151
6/16/2008	21.6	0	138	21.9	0	151
6/17/2008	22.1	0	138	22.8	0	151
6/18/2008	20.1	0	138	21.8	0	151
6/19/2008	21.5	0	138	21.2	0	151
6/20/2008	21.7	0	138	22.7	0	151
6/21/2008	23.1	0	138	23.6	0	151
6/22/2008	22.3	0	138	22.7	0	151
6/23/2008	22.7	0	138	23.4	0	151
6/24/2008	22.5	0	138	22.0	0	151
6/25/2008	23.0	0	138	23.0	0	151
6/26/2008	24.7	0	138	25.2	0	151
6/27/2008	21.6	0	138	21.6	0	151
6/28/2008	22.5	0	138	24.8	0	151
6/29/2008	22.5	0	138	25.4	0	151
6/30/2008	23.1	0	138	24.6	0	151
7/1/2008	25.1	0	138	26.2	0	151
7/2/2008	26.7	0	138	28.1	0	151
7/3/2008	27.4	0	138	28.1	0	151
7/4/2008	27.5	0	138	27.4	0	151
7/5/2008	26.6	0	138	27.1	0	151
7/6/2008	26.4	0	138	24.1	0	151
7/7/2008	27.7	0	138	25.5	0	151
7/8/2008	27.9	0	138	26.6	0	151
7/9/2008	26.7	0	138	24.8	0	151
7/10/2008	28.6	0	138	27.6	0	151
7/11/2008	26.3	0	138	26.8	0	151
7/12/2008	25.3	0	138	25.8	0	151
7/13/2008	27.0	0	138	25.6	0	151
7/14/2008	27.1	0	138	27.0	0	151
7/15/2008	28.1	0	138	27.5	0	151
7/16/2008	29.1	0	138	28.6	0	151
7/17/2008	26.8	0	138	27.6	0	151
7/18/2008	26.4	0	138	27.9	0	151
7/19/2008	27.3	0	138	28.3	0	151
7/20/2008	27.0	0	138	27.4	0	151
7/21/2008	25.1	0	138	27.1	0	151
7/22/2008	24.8	0	138	27.5	0	151
7/23/2008	22.0	0	138	24.5	0	151
7/24/2008	23.8	0	138	23.9	0	151
7/25/2008	25.1	0	138	24.0	0	151

7/26/2008	24.1	0	138	24.1	0	151
7/27/2008	24.4	0	138	29.8	0	151
7/28/2008	23.9	0	138	29.5	0	151
7/29/2008	26.8	0	138	27.0	0	151
7/30/2008	25.9	0	138	24.8	0	151
7/31/2008	22.0	0	138	24.3	0	151
8/1/2008	23.1	0	138	25.0	0	151
8/2/2008	24.6	0	138	25.0	0	151
8/3/2008	25.6	0	138	25.2	0	151
8/4/2008	24.0	0	138	24.5	0	151
8/5/2008	25.1	0	138	26.5	0	151
8/6/2008	25.4	0	138	28.0	0	151
8/7/2008	25.7	0	138	27.0	0	151
8/8/2008	26.3	0	138	26.8	0	151
8/9/2008	24.9	0	138	27.2	0	151
8/10/2008	24.3	0	138	25.8	0	151
8/11/2008	24.6	0	138	24.1	0	151
8/12/2008	25.1	0	138	28.7	0	151
8/13/2008	25.1	0	138	26.3	0	151
8/14/2008	26.8	0	138	-	0	151
8/15/2008	26.9	0	138	29.1	0	151
8/16/2008	24.4	0	138	24.8	0	151
8/17/2008	25.6	0	138	26.7	0	151
8/18/2008	26.8	0	138	28.0	0	151
8/19/2008	24.5	0	138	24.7	0	151
8/20/2008	24.1	0	138	24.2	0	151
8/21/2008	24.3	0	138	26.5	0	151
8/22/2008	23.1	0	138	26.3	0	151
8/23/2008	23.1	0	138	26.3	0	151
8/24/2008	27.5	0	138	27.5	0	151
8/25/2008	25.0	0	138	24.5	0	151
8/26/2008	25.7	0	138	27.3	0	151
8/27/2008	24.6	0	138	25.2	0	151
8/28/2008	23.2	0	138	23.3	0	151
8/29/2008	24.1	0	138	25.2	0	151
8/30/2008	26.1	0	138	25.8	0	151
8/31/2008	24.3	1	137	24.3	0	151
9/1/2008	24.3	0	137	25.3	0	151
9/2/2008	24.3	0	137	25.4	0	151
9/3/2008	24.6	0	137	25.0	0	151
9/4/2008	23.3	0	137	23.6	0	151

9/5/2008	24.1	0	137	24.8	0	151
9/6/2008	25.4	0	137	26.1	0	151
9/7/2008	25.0	0	137	26.8	0	151
9/8/2008	24.6	0	137	25.1	0	151
9/9/2008	25.3	0	137	25.3	0	151
9/10/2008	24.8	0	137	24.4	0	151
9/11/2008	23.6	0	137	25.1	0	151
9/12/2008		0	137		0	151
9/13/2008		0	137		0	151
9/14/2008	24.5	0	137	25.8	0	151
9/15/2008	25.9	0	137	25.2	0	151
9/16/2008	25.8	0	137	25.2	0	151
9/17/2008	25.1	0	137	25.1	0	151
9/18/2008	25.1	0	137	25.0	0	151
9/19/2008	25.6	0	137	25.9	0	151
9/20/2008	25.1	0	137	26.0	0	151
9/21/2008	24.4	0	137	25.4	0	151

Table 2 2008 Northwest Trek early rearing interval, Conboy Lake

Date	C-T3 Temp	C-T3 Dead	C-T3 Total Pop	C-T4 Temp	C-T4 Dead	C-T4 Total Pop
5/15/2008	24.5	0	135	23.9	0	141
5/16/2008	25.3	0	135	24.7	0	141
5/17/2008	23.5	0	135	25.0	0	141
5/18/2008	25.0	0	135	25.8	0	141
5/19/2008	22.1	0	135	23.0	0	141
5/20/2008	22.8	0	135	23.3	0	141
5/21/2008	20.3	0	135	20.6	0	141
5/22/2008	20.7	0	135	20.1	0	141
5/23/2008	19.8	0	135	20.1	0	141
5/24/2008	23.2	0	135	22.9	0	141
5/25/2008	23.0	0	135	23.2	0	141
5/26/2008	21.0	0	135		0	141
5/27/2008	20.6	0	135	21.0	0	141
5/28/2008	20.8	0	135	20.4	1	140
5/29/2008		0	135		0	140
5/30/2008	21.5	0	135	21.2	0	140
5/31/2008	23.0	0	135	23.8	0	140
6/1/2008	21.5	0	135	23.8	0	140
6/2/2008	20.7	0	135	22.1	0	140

6/3/2008	20.7	0	135		0	140
6/4/2008	20.7	0	135	30.3	0	140
6/5/2008	20.0	0	135	21.1	0	140
6/6/2008	21.2	0	135	21.1	0	140
6/7/2008	21.2	0	135	22.2	0	140
6/8/2008	21.1	0	135	21.7	0	140
6/9/2008	21.4	0	135	21.5	0	140
6/10/2008	19.9	0	135	20.5	0	140
6/11/2008	20.6	0	135	21.4	0	140
6/12/2008	18.4	0	135	21.6	0	140
6/13/2008	21.9	0	135	23.8	0	140
6/14/2008	21.9	0	135	18.1	0	140
6/15/2008	19.9	0	135	10.5	0	140
6/16/2008	20.6	0	135	21.7	0	140
6/17/2008	21.6	0	135	23.1	0	140
6/18/2008	20.5	0	135	20.1	0	140
6/19/2008	22.2	0	135	21.1	0	140
6/20/2008	23.7	0	135	24.1	0	140
6/21/2008	24.6	0	135	24.8	0	140
6/22/2008	23.1	0	135	23.3	0	140
6/23/2008	23.1	0	135	25.1	0	140
6/24/2008	22.2	0	135	24.5	0	140
6/25/2008	23.5	0	135	24.4	0	140
6/26/2008	25.1	0	135	26.1	0	140
6/27/2008	24.2	0	135	23.6	0	140
6/28/2008	25.3	0	135	25.9	0	140
6/29/2008	26.1	0	135	25.1	0	140
6/30/2008	24.1	0	135	27.1	0	140
7/1/2008	25.5	0	135	27.8	0	140
7/2/2008	26.4	0	135	27.8	0	140
7/3/2008	28.1	0	135	26.5	0	140
7/4/2008	26.4	0	135	26.7	0	140
7/5/2008	26.3	1	134	26.8	0	140
7/6/2008	25.9	0	134	27.1	0	140
7/7/2008	26.5	0	134	30.3	0	140
7/8/2008	27.4	0	134	30.3	0	140
7/9/2008	26.8	0	134	31.1	0	140
7/10/2008	28.1	0	134	31.1	0	140
7/11/2008	28.1	0	134	28.1	0	140
7/12/2008	27.1	0	134	26.3	0	140
7/13/2008		0	134	30.1	0	140

7/14/2008	28.8	0	134	27.1	0	140
7/15/2008	28.2	0	134	28.1	0	140
7/16/2008	30.1	0	134	29.9	0	140
7/17/2008	26.6	0	134	27.8	0	140
7/18/2008	29.5	0	134	31.1	0	140
7/19/2008	28.4	0	134	29.4	0	140
7/20/2008	27.4	0	134	27.0	0	140
7/21/2008	26.8	0	134	29.4	0	140
7/22/2008	28.2	0	134	31.1	0	140
7/23/2008	25.0	0	134	29.2	0	140
7/24/2008	25.3	0	134	28.6	0	140
7/25/2008	24.0	0	134	28.6	0	140
7/26/2008	27.5	0	134	28.6	0	140
7/27/2008	27.1	0	134	25.3	0	140
7/28/2008	24.5	0	134	26.1	0	140
7/29/2008	27.1	0	134	28.1	0	140
7/30/2008	24.8	0	134	27.9	0	140
7/31/2008	24.6	0	134	28.1	0	140
8/1/2008	25.0	0	134	27.5	0	140
8/2/2008	24.6	0	134	27.5	0	140
8/3/2008	25.4	0	134	27.9	0	140
8/4/2008	25.4	0	134	27.9	0	140
8/5/2008	27.3	0	134	27.4	0	140
8/6/2008	27.0	0	134	27.8	0	140
8/7/2008	24.8	0	134	25.9	0	140
8/8/2008	28.5	0	134	30.0	0	140
8/9/2008	27.5	0	134	27.5	0	140
8/10/2008	27.1	0	134	26.1	0	140
8/11/2008	27.1	0	134	24.6	0	140
8/12/2008	27.1	0	134	28.1	0	140
8/13/2008	27.1	0	134	26.3	0	140
8/14/2008	27.8	0	134	28.4	0	140
8/15/2008	27.8	0	134	29.0	0	140
8/16/2008	28.5	0	134	31.0	0	140
8/17/2008	26.1	0	134	27.3	1	139
8/18/2008	27.6	0	134	28.9	0	139
8/19/2008	26.0	0	134	25.3	0	139
8/20/2008	24.9	0	134	26.8	0	139
8/21/2008	24.7	0	134	24.7	0	139
8/22/2008	24.3	0	134	25.0	0	139
8/23/2008	26.9	0	134	26.8	0	139

8/24/2008	27.0	0	134	28.5	0	139
8/25/2008	24.5	0	134	27.3	0	139
8/26/2008	25.6	1	133	25.2	0	139
8/27/2008	25.8	0	133	26.4	0	139
8/28/2008	23.3	0	133	24.1	0	139
8/29/2008	27.0	0	133	25.9	0	139
8/30/2008	27.0	0	133	26.0	0	139
8/31/2008	25.1	0	133	26.1	0	139
9/1/2008	26.3	0	133	25.7	0	139
9/2/2008	26.2	0	133	24.1	0	139
9/3/2008	25.6	0	133	26.3	0	139
9/4/2008	25.9	0	133	24.6	0	139
9/5/2008	25.7	0	133	26.5	0	139
9/6/2008	26.3	0	133	26.0	0	139
9/7/2008	24.9	0	133	25.1	0	139
9/8/2008	26.5	0	133	26.5	0	139
9/9/2008	25.6	0	133	28.1	0	139
9/10/2008	23.6	0	133	25.1	0	139
9/11/2008	25.3	0	133	25.6	0	139
9/12/2008		0	133		0	139
9/13/2008		0	133		0	139
9/14/2008	25.1	0	133	26.0	0	139
9/15/2008	24.2	0	133	25.4	0	139
9/16/2008	24.3	0	133	24.1	0	139
9/17/2008	26.1	1	132	28.1	0	139
9/18/2008	24.8	0	132	25.5	0	139
9/19/2008	26.3	0	132	25.1	0	139
9/20/2008	26.1	0	132	25.1	0	139
9/21/2008	25.8	0	132	28.3	0	139

Table 3. 2009 Northwest Trek later rearing interval, Black River

Date	Test Max Temp	Test Min Temp	Test Dead	Test Total Pop	Surplus Max Temp	Surplus Min Temp	Surplus Dead	Surplus Total Pop
5/6/2009	23.8	13.5	0	100	24.6	13.6	0	142
5/7/2009	22.4	12.4	0	100	22.8	12.4	0	142
5/8/2009	22.9	12.2	0	100	22.5	12.8	4	138
5/9/2009	24.8	11.2	0	100	24.7	12.2	1	137
5/10/2009	25.9	13.0	1	100	24.8	14.5	0	136
5/11/2009	25.0	15.6	0	100	24.7	16.3	1	135
5/12/2009	24.9	12.0	0	100	24.9	12.4	0	135
5/13/2009	24.6	11.0	0	100	22.5	11.5	0	135
5/14/2009	23.4	13.3	0	100	23.1	13.4	0	135

5/15/2009	24.0	13.8	1	100	24.2	13.5	0	134
5/16/2009	25.0	14.6	2	100	24.4	14.6	0	132
5/17/2009	26.8	17.5	1	100	26.0	24.0	0	131
5/18/2009	27.6	17.9	2	100	26.8	18.0	0	129
5/19/2009	26.5	19.7	3	100	25.7	15.0	12	114
5/20/2009	22.6	12.8	3	100	23.6	13.3	13	98
5/21/2009	23.6	12.5	8	100	24.3	12.5	7	83
5/22/2009	25.3	13.9	19	100	24.2	14.8	13	51
5/23/2009	25.3	14.7	9	100	24.6	15.4	12	30
5/24/2009	25.3	14.8	11	100	24.5	15.2	5	14
5/25/2009	25.5	15.7	9	93	24.6	16.4	12	0
5/26/2009	26.0	15.5	23	70				
5/27/2009	22.6	15.0	6	64				
5/28/2009	25.1	15.0	12	52				
5/29/2009	26.8	17.0	15	37				
5/30/2009	22.1	17.3	5	32				
5/31/2009	19.8	17.0	0	32				
6/1/2009	20.3	17.0	1	31				
6/2/2009	20.8	18.0	2	29				
6/3/2009	20.6	18.0	4	25				
6/4/2009	20.9	18.0	2	23				
6/5/2009	20.9	18.7	2	21				
6/6/2009	20.4	18.0	1	20				
6/7/2009	19.8	17.5	0	20				
6/8/2009	19.6	17.3	3	17				
6/9/2009	19.7	17.3	1	16				
6/10/2009	20.1	18.0	2	14				
6/11/2009	20.1	17.8	1	13				
6/12/2009	19.9	18.0	4	9				
6/13/2009	20.1	18.0	1	8				
6/14/2009	20.1	17.8	1	7				
6/15/2009	19.7	17.5	2	5				
6/16/2009	20.0	17.6	2	3				
6/17/2009	20.1	17.8	0	3				
6/18/2009	20.1	17.8	1	2				
6/19/2009	20.6	17.8	1	1				
6/20/2009	20.6	17.2	0	1				
6/21/2009	20.0	17.0	0	1				
6/22/2009	20.3	16.6	1	0				

Table 4. 2009 Northwest Trek later rearing interval, Conboy Lake

Date	Test Max Temp	Test Min Temp	Test Dead	Test Total Pop	Surplus Max Temp	Surplus Min Temp	Surplus Dead	Surplus Total Pop
5/6/2009	22.7	13.3	0	100	24.5	13.8	0	66
5/7/2009	22.0	11.8	0	100	22.5	12.6	12	54
5/8/2009	22.9	12.5	1	100	23.0	12.9	4	49
5/9/2009	24.2	10.8	0	100	23.2	11.3	1	48
5/10/2009	26.1	13.3	4	100	25.1	14.3	1	43
5/11/2009	24.9	16.0	5	100	26.0	15.8	6	32

5/12/2009	25.5	12.0	0	100	24.7	11.9	0	32
5/13/2009	24.2	11.0	2	100	24.6	11.8	13	17
5/14/2009	23.5	13.5	9	100	24.2	13.9	1	7
5/15/2009	24.3	13.8	6	94	24.1	13.4	1	6
5/16/2009	25.7	15.0	3	91	25.2	13.6	1	5
5/17/2009	27.3	17.6	0	91	26.8	17.1	0	5
5/18/2009	27.8	17.8	9	82	25.1	24.9	5	0
5/19/2009	26.5	14.6	37	45				
5/20/2009	22.3	12.8	1	44				
5/21/2009	24.1	12.3	2	42				
5/22/2009	25.9	14.0	3	39				
5/23/2009	26.1	14.9	0	39				
5/24/2009	26.6	14.8	2	37				
5/25/2009	26.3	15.7	1	36				
5/26/2009	27.1	16.0	13	23				
5/27/2009	23.8	15.0	3	20				
5/28/2009	26.5	15.0	3	17				
5/29/2009	28.1	17.5	3	14				
5/30/2009	21.8	17.5	1	13				
5/31/2009	20.1	17.4	1	12				
6/1/2009	20.5	17.5	3	9				
6/2/2009	20.6	18.3	0	9				
6/3/2009	20.8	18.4	4	5				
6/4/2009	21.1	18.5	0	5				
6/5/2009	21.1	19.0	0	5				
6/6/2009	20.5	18.0	2	3				
6/7/2009	20.5	17.5	0	3				
6/8/2009	20.7	16.8	0	3				
6/9/2009	20.3	17.0	0	3				
6/10/2009	20.5	18.0	0	3				
6/11/2009	20.6	17.8	0	3				
6/12/2009	20.1	17.8	2	1				
6/13/2009	20.5	17.9	0	1				
6/14/2009	20.5	17.6	0	1				
6/15/2009	20.1	17.3	0	1				
6/16/2009	20.6	17.3	0	1				
6/17/2009	20.5	17.4	0	1				
6/18/2009	20.3	17.6	0	1				
6/19/2009	20.7	17.6	0	1				
6/20/2009	20.5	17.3	0	1				
6/21/2009	20.0	17.1	0	1				
6/22/2009	20.4	16.8	1	0				

Table 5. 2009 Oregon Zoo later rearing interval, Black River

Date	Test B-T2 Temp	Test B-T2 Dead	Test B-T2 Total Pop	Surplus B-T4 Temp	Surplus B-T4 Dead	Surplus B-T4 Total Pop
5/4/2009	22.2	0	100	22.2	0	85
5/5/2009	22.2	0	100	22.2	0	85
5/6/2009	22.2	0	100	15.6	0	85

5/7/2009	21.1	0	100	20.0	0	85
5/8/2009	22.2	0	100	22.2	0	85
5/9/2009	24.4	0	100	24.4	0	85
5/10/2009	23.3	0	100	23.3	0	85
5/11/2009	26.1	0	100	25.0	0	85
5/12/2009	23.3	0	100	23.3	0	85
5/13/2009	22.2	0	100	20.0	0	85
5/14/2009	24.4	0	100	21.1	0	85
5/15/2009	24.4	0	100	24.4	0	85
5/16/2009	28.9	0	100	28.9	0	85
5/17/2009	27.8	0	100	27.8	0	85
5/18/2009	27.8	0	100	27.8	0	85
5/19/2009	25.0	0	100	23.9	0	85
5/20/2009	23.3	0	100	22.2	0	85
5/21/2009	25.6	0	100	23.3	0	85
5/22/2009	25.6	0	100	25.6	0	85
5/23/2009	26.7	0	100	26.7	0	85
5/24/2009	26.7	0	100	26.7	0	85
5/25/2009	27.2	0	100	27.2	0	85
5/26/2009	25.6	0	100	25.6	0	85
5/27/2009	26.7	0	100	25.0	0	85
5/28/2009	26.7	0	100	24.4	0	85
5/29/2009	27.8	0	100	27.8	0	85
5/30/2009	30.6	0	100	30.6	0	85
5/31/2009	30.6	0	100	30.6	0	85
6/1/2009	30.0	2	100	30.0	2	81
6/2/2009	27.8	0	100	27.8	1	80
6/3/2009	26.7	0	100	25.6	0	80
6/4/2009	26.1	0	100	23.3	0	80
6/5/2009	24.4	0	100	24.4	0	79
6/6/2009	25.6	1	100	25.6	0	78
6/7/2009	25.6	0	100	25.6	0	78
6/8/2009	24.4	0	100	24.4	0	78
6/9/2009	27.8	0	100	27.8	0	78
6/10/2009	20.0	0	100	27.8	0	78
6/11/2009	26.7	0	100	27.8	0	78
6/12/2009	26.7	0	100	26.7	0	78
6/13/2009	26.7	0	100	26.7	0	78
6/14/2009	26.7	0	100	26.7	0	78
6/15/2009	24.4	0	100	24.4	0	78
6/16/2009	27.2	0	100	27.8	0	78
6/17/2009	26.7	0	100	26.7	0	78
6/18/2009	26.7	0	100	26.7	0	78
6/19/2009	26.7	0	100	26.7	0	78
6/20/2009	26.7	0	100	27.2	0	78
6/21/2009	25.6	0	100	25.6	0	78
6/22/2009	26.7	0	100	26.7	0	78
6/23/2009	25.6	0	100	26.7	0	78
6/24/2009	25.6	0	100	26.7	0	78
6/25/2009	26.1	0	100	26.1	0	78
6/26/2009	25.6	1	100	25.6	0	77
6/27/2009	27.8	0	100	27.8	0	77
6/28/2009	27.8	0	100	27.8	0	77
6/29/2009	25.6	0	100	25.6	2	75
6/30/2009	26.7	0	100	26.7	0	75

7/1/2009	26.7	3	100	26.7	1	71
7/2/2009	26.7	3	100	26.7	2	66
7/3/2009	26.7	1	100	26.7	4	61
7/4/2009	24.4	2	100	24.4	0	59
7/5/2009	25.6	0	100	25.6	0	59
7/6/2009	20.0	1	100	20.0	0	58
7/7/2009	20.0	0	100	20.0	0	58
7/8/2009	18.9	1	100	16.7	0	57
7/9/2009	16.7	0	100	15.6	0	57
7/10/2009	18.9	0	100	18.9	0	57
7/11/2009	22.2	1	100	23.3	0	56
7/12/2009	23.3	1	100	23.3	0	55
7/13/2009	23.3	0	100	23.3	0	55
7/14/2009	23.3	0	100	23.3	0	55
7/15/2009	24.4	0	100	23.3	0	55
7/16/2009	24.4	2	100	23.3	0	53
7/17/2009	26.7	0	100	26.7	0	53
7/18/2009	26.7	2	100	28.9	1	50
7/19/2009	27.8	0	100	27.8	0	50
7/20/2009	26.7	0	100	26.7	0	50
7/21/2009	23.9	0	100	22.2	1	49
7/22/2009	23.9	4	100	23.3	0	45
7/23/2009	22.2	1	100	23.3	0	44
7/24/2009	23.9	0	100	23.3	0	44
7/25/2009	23.9	0	100	24.4	0	44
7/26/2009	23.3	1	100	23.3	0	43
7/27/2009	24.4	1	100	24.4	0	42
7/28/2009	26.7	1	100	26.7	0	41
7/29/2009	25.6	2	100	25.6	0	39
7/30/2009	25.6	7	100	24.4	1	31
7/31/2009	26.7	3	97	26.7	0	31
8/1/2009	26.7	1	96	26.7	0	31
8/2/2009	26.7	1	95			31
8/3/2009	23.3	2	93			31
8/4/2009	23.3	0	93			31
8/5/2009	23.3	0	93			32
				18.3	0	68
				18.3	0	68
				20.0	1	67
				23.3	1	66
				23.3	1	65
				23.3	0	65
				24.4	3	38
				23.3	0	38
				23.3	0	38
				24.4	0	29
				23.3	0	29
				25.6	2	27
				24.4	3	24
				25.6	2	22
				25.6	0	22
				23.3	0	22
				23.3	0	22
				25.6	0	22
				24.4	1	21

24.4	4	17
25.0	0	17
25.0	2	15
25.6	1	14
24.4	0	14
22.2	2	12
17.8	0	12
24.4	0	12
24.4	0	12
24.4	0	12
24.4	0	12
24.4	0	12
24.4	0	12
24.4	0	12
24.4	1	11
23.3	0	11
23.3	0	11
23.3	1	10
23.3	0	10
23.3	0	10
23.3	0	10
23.3	0	10
23.3	0	10
22.2	2	8
22.2	0	8
22.2	0	8
23.3	0	8
22.2	0	8
22.2	1	7
22.2	0	7
22.2	0	7
22.2	1	6
22.2	0	6
21.1	2	4
21.1	0	4
22.2	0	4
22.2	0	4
22.2	0	4
22.2	1	3
22.2	0	3
22.2	0	3
22.2	0	3
22.2	0	3
21.1	0	3
20.0	0	3
17.8	1	2
18.9	0	2
18.9	0	2
17.8	0	2
17.8	0	2
17.8	0	2
17.8	0	2
20.0	0	2
18.9	0	2
20.0	1	1

20.0	0	1
20.0	0	1
20.0	0	1
20.0	0	1
18.9	0	1
18.9	0	1
18.9	0	1
18.9	0	1
18.9	0	1
18.9	0	1
18.9	0	1
18.9	0	1
18.9	0	1
17.8	0	1
16.7	0	1
16.7	0	1
16.7	0	1
16.7	0	1
16.7	0	1
16.7	0	1
16.7	0	1
16.7	0	1
16.7	0	1
16.7	0	1

Table 6. 2009 Oregon Zoo later rearing interval, Conboy Lake

Date	Test C-T1 Temp	Test C-T1 Dead	Test C-T1 Total Pop	Surplus C-T3 Temp	Surplus C-T3 Dead	Surplus C-T3 Total Pop
5/4/2009	22.2	0	100	22.2	0	84
5/5/2009	22.2	0	100	22.2	0	84
5/6/2009	22.2	0	100	16.7	0	84
5/7/2009	21.1	0	100	18.9	0	84
5/8/2009	22.2	0	100	22.2	0	84
5/9/2009	24.4	0	100	24.4	0	84
5/10/2009	23.3	0	100	23.3	0	84
5/11/2009	26.1	0	100	26.1	0	84
5/12/2009	23.3	0	100	23.3	0	84
5/13/2009	22.2	0	100	21.1	0	84
5/14/2009	22.2	0	100	22.2	0	84
5/15/2009	24.4	0	100	24.4	0	84
5/16/2009	28.9	0	100	28.9	0	84
5/17/2009	27.8	0	100	27.8	0	84
5/18/2009	27.8	0	100	27.8	0	84
5/19/2009	25.0	0	100	23.9	0	84
5/20/2009	23.3	0	100	23.3	0	84
5/21/2009	25.6	0	100	25.6	0	84
5/22/2009	25.6	0	100	25.6	0	84
5/23/2009	26.7	0	100	26.7	0	84
5/24/2009	27.2	0	100	26.7	0	84
5/25/2009	27.8	0	100	27.2	0	84
5/26/2009	25.6	0	100	25.6	0	84

5/27/2009	26.7	0	100	26.7	0	84
5/28/2009	26.7	0	100	26.7	0	84
5/29/2009	27.8	0	100	27.8	0	84
5/30/2009	30.6	0	100	30.6	0	84
5/31/2009	30.6	0	100	30.6	0	84
6/1/2009	30.0	1	100	30.6	2	82
6/2/2009	27.8	0	100	27.8	2	80
6/3/2009	26.7	0	100	26.7	0	80
6/4/2009	26.1	0	100	26.1	0	80
6/5/2009	24.4	0	100	24.4	0	80
6/6/2009	25.6	0	100	25.6	0	80
6/7/2009	25.6	0	100	25.6	0	80
6/8/2009	24.4	0	100	24.4	0	80
6/9/2009	27.8	0	100	27.8	0	80
6/10/2009	27.8	0	100	27.8	0	80
6/11/2009	27.8	0	100	26.7	0	80
6/12/2009	26.7	0	100	26.7	0	80
6/13/2009	26.7	0	100	26.7	0	80
6/14/2009	26.7	1	99	26.7	0	80
6/15/2009	20.0	0	99	24.4	0	80
6/16/2009	25.6	2	97	27.8	0	80
6/17/2009	26.7	2	95	26.7	0	80
6/18/2009	27.8	0	95	26.7	0	80
6/19/2009	26.7	0	100	26.7	0	75
6/20/2009	26.1	0	100	26.7	0	75
6/21/2009	26.7	0	100	26.7	0	75
6/22/2009	26.7	0	100	26.7	0	75
6/23/2009	25.6	0	100	26.7	0	75
6/24/2009	26.7	0	100	26.7	0	75
6/25/2009	26.7	0	100	26.1	0	75
6/26/2009	26.7	0	100	25.6	0	75
6/27/2009	27.8	0	100	27.8	0	75
6/28/2009	27.8	0	100	27.8	0	75
6/29/2009	25.6	0	100	25.6	0	75
6/30/2009	26.7	0	100	26.7	0	75
7/1/2009	26.7	0	100	26.7	0	75
7/2/2009	26.7	0	100	26.7	1	74
7/3/2009	26.7	0	100	26.7	4	70
7/4/2009	24.4	0	100	24.4	0	70
7/5/2009	25.6	0	100	25.6	0	70
7/6/2009	20.0	0	100	20.0	1	69
7/7/2009	20.0	0	100	20.0	0	69
7/8/2009	18.9	0	100	17.8	0	69
7/9/2009	18.3	0	100	18.3	0	69
7/10/2009	18.9	0	100	18.9	0	69
7/11/2009	22.2	1	100	22.2	0	68
7/12/2009	22.2	0	100	22.2	0	68
7/13/2009	23.3	1	100	23.3	0	67
7/14/2009	24.4	0	100	23.3	0	67
7/15/2009	24.4	0	100	24.4	0	67
7/16/2009	23.3	0	100	22.2	0	67
7/17/2009	26.7	0	100	26.7	0	67
7/18/2009	26.7	0	100	26.7	2	65
7/19/2009	27.8	0	100	27.8	0	65
7/20/2009	26.7	0	100	26.7	0	65

7/21/2009	23.9	0	100	23.9	0	65
7/22/2009	23.9	0	100	23.9	1	64
7/23/2009	23.3	0	100	24.4	1	63
7/24/2009	23.9	0	100	23.9	0	63
7/25/2009	23.9	0	100	24.4	0	63
7/26/2009	23.3	0	100	23.3	0	63
7/27/2009	24.4	0	100	24.4	0	63
7/28/2009	26.7	0	100	26.7	0	63
7/29/2009	25.6	0	100	25.6	6	57
7/30/2009	25.6	4	100	26.7	4	49
7/31/2009	26.7	0	100	26.7	0	49
8/1/2009	26.7	0	100	26.7	0	49
8/2/2009	26.7	1	100	27.8	0	48
8/3/2009	23.3	0	100	23.3	0	48
8/4/2009	23.3	0	68	23.3	0	48
8/5/2009	23.3	1	68	23.3	0	47
8/6/2009	18.9	1	68	20.0	0	46
8/7/2009	18.9	0	68	18.9	0	46
8/8/2009	20.0	0	67	20.0	0	47
8/9/2009	23.3	0	66	23.3	0	48
8/10/2009	23.3	1	65	23.3	0	48
8/11/2009	23.3	0	65	23.3	2	46
8/12/2009	23.3	1	38	24.4	5	46
8/13/2009	17.8	0	38	25.6	0	46
8/14/2009	15.6	0	38	24.4	0	46
8/15/2009	23.3	0	29	25.6	0	55
8/16/2009	23.3	0	29	17.8	0	55
8/17/2009	25.6	0	27	25.6	0	57
8/18/2009	24.4	0	24	24.4	2	58
8/19/2009	25.0	0	22	25.6	1	59
8/20/2009	24.4	0	22	24.4	0	59
8/21/2009	23.3	0	22	23.3	2	57
8/22/2009	23.3	0	22	23.3	1	56
8/23/2009	25.6	0	22	25.6	3	53
8/24/2009	24.4	0	21	24.4	0	54
8/25/2009	24.4	0	17	24.4	2	56
8/26/2009	23.9	0	17	25.6	0	56
8/27/2009	24.4	1	15	25.0	0	57
8/28/2009	24.4	0	14	24.4	2	55
8/29/2009	24.4	0	14	20.0	0	55
8/30/2009	23.3	0	12	21.1	0	57
8/31/2009	23.3	0	12	23.3	0	57
9/1/2009	23.3	0	12	24.4	0	57
9/2/2009	23.3	0	12	24.4	0	57
9/3/2009	23.3	0	12	24.4	0	57
9/4/2009	23.3	0	12	24.4	0	57
9/5/2009	24.4	0	12	24.4	0	57
9/6/2009	24.4	0	12	24.4	2	57
9/7/2009	23.3	0	12	24.4	0	57
9/8/2009	23.3	0	11	24.4	0	58
9/9/2009	23.3	0	11	23.3	0	58
9/10/2009	23.3	1	11	23.3	0	57
9/11/2009	23.3	0	10	23.3	0	58
9/12/2009	23.3	0	10	23.3	0	58
9/13/2009	23.3	0	10	23.3	0	58

9/14/2009	23.3	0	10	23.3	2	56
9/15/2009	23.3	0	10	23.3	0	56
9/16/2009	23.3	0	10	23.3	0	56
9/17/2009	23.3	0	8	23.3	0	58
9/18/2009	23.3	1	8	23.3	0	57
9/19/2009	22.2	0	8	23.3	1	56
9/20/2009	23.3	0	8	23.3	0	56
9/21/2009	22.2	0	8	22.2	0	56
9/22/2009	22.2	0	7	22.2	1	56
9/23/2009	22.2	0	7	22.2	0	56
9/24/2009	22.2	0	7	22.2	2	54
9/25/2009	22.2	0	6	22.2	0	55
9/26/2009	23.3	0	6	23.3	1	54
9/27/2009	23.3	0	7	25.6	0	54
9/28/2009	23.3	0	7	24.4	3	51
9/29/2009	23.3	0	4	24.4	0	51
9/30/2009	23.3	0	4	23.3	0	51
10/1/2009	23.3	0	4	23.3	0	52
10/2/2009	23.3	0	4	23.3	0	52
10/3/2009	23.3	0	3	23.3	0	52
10/4/2009	23.3	0	3	23.3	0	52
10/5/2009	23.3	0	3	23.3	0	52
10/6/2009	23.3	0	3	23.3	0	52
10/7/2009	23.3	0	3	23.3	2	50
10/8/2009	23.3	0	3	23.3	0	50
10/9/2009	23.3	0	2	23.3	2	49
10/10/2009	23.3	0	2	23.3	0	49
10/11/2009	23.3	0	2	23.3	0	49
10/12/2009	23.3	0	2	23.3	0	49
10/13/2009	22.2	0	2	22.2	0	49
10/14/2009	22.2	0	2	22.2	0	49
10/15/2009	22.2	0	2	22.2	0	49
10/16/2009	22.2	0	2	22.2	0	49
10/17/2009	22.2	0	2	22.2	0	49
10/18/2009	22.2	0	1	22.2	2	48
10/19/2009	22.2	0	1	22.2	0	48
10/20/2009	22.2	0	1	22.2	0	48
10/21/2009	22.2	0	1	22.2	0	48
10/22/2009	22.2	0	1	22.2	0	48
10/23/2009	22.2	0	1	22.2	1	47
10/24/2009	21.1	0	1	21.1	2	45
10/25/2009	21.1	0	1	21.1	0	45
10/26/2009	21.1	0	1	21.1	1	44
10/27/2009	21.1	0	1	21.1	0	44
10/28/2009	21.1	0	1	21.1	1	43
10/29/2009	21.1	0	1	21.1	0	43
10/30/2009	21.1	0	1	21.1	1	42
10/31/2009	21.1	0	1	21.1	0	42
11/1/2009	21.1	0	1	21.1	0	42
11/2/2009	18.9	0	1	20.0	0	42
11/3/2009	18.9	0	1	20.0	0	42
11/4/2009	18.9	0	1	20.0	0	42
11/5/2009	18.9	0	1	20.0	0	42
11/6/2009	20.0	0	1	20.0	2	40
11/7/2009	20.0	0	1	20.0	0	40

11/8/2009	18.9	0	1	18.9	0	40
11/9/2009	17.8	0	1	17.8	0	40
11/10/2009	17.8	0	1	18.9	0	40

Table 7. 2009 Woodland Park Zoo later rearing interval, Black River

Date	Test B-T2 Temp	Test B-T2 Dead	B-T2 Total Pop	Test B-T8 Temp	Test B-T8 Dead	Test B-T8 Total Pop	Surplus B-T3 Temp	Surplus B-T3 Dead	Surplus B-T3 Total Pop	Surplus B-T4 Temp	Surplus B-T4 Dead	Surplus B-T4 Total Pop
5/12/2009	18.4	0.0	100.0	18.4	0	100.0	18.7	0	100	18.7	0	111
5/13/2009	17.2	0.0	100.0	16.9	0	100.0	17.9	0	100	17.3	0	111
5/14/2009	18.5	0.0	100.0	18.1	0	100.0	18.6	0	100	18.9	0	111
5/15/2009	20.5	0.0	100.0	21.4	0	100.0	21.1	0	100	21.2	0	111
5/16/2009	18.2	0.0	100.0	18.8	0	100.0	18.5	0	100	18.3	0	111
5/17/2009	20.8	0.0	100.0	21.1	0	100.0	20.9	1	99	21.3	0	111
5/18/2009	20.7	0.0	100.0	22.1	0	100.0	20.7	1	98	20.6	0	111
5/19/2009	19.6	0.0	100.0	18.5	0	100.0	19.1	0	98	18.9	0	111
5/20/2009	16.7	0.0	100.0	16.6	0	100.0	16.4	0	98	16.2	0	111
5/21/2009	22.1	0.0	100.0	21.7	0	100.0	21.3	0	98	21.2	0	111
5/22/2009	22.2	0.0	100.0	21.4	0	100.0	21.9	0	98	21.4	0	111
5/23/2009	21.8	0.0	100.0	21.1	0	100.0	21.3	0	98	21.1	0	111
5/24/2009	22.1	0.0	100.0	20.2	0	100.0	21.5	0	98	21.2	0	111
5/25/2009	21.6	0.0	100.0	20.2	0	100.0	20.9	0	98	20.8	0	111
5/26/2009	21.9	0.0	100.0	20.9	0	100.0	21.8	0	98	21.6	0	111
5/27/2009	20.3	0.0	100.0	20.9	0	100.0	20.7	0	98	20.8	0	111
5/28/2009	20.7	0.0	100.0	20.8	0	100.0	20.9	0	98	20.8	0	111
5/29/2009	21.9	0.0	100.0	21.8	0	100.0	22.2	0	98	22.4	0	111
5/30/2009	20.8	0.0	100.0	19.7	0	100.0	19.6	0	98	20.0	0	111
5/31/2009	21.4	0.0	100.0	21.2	0	100.0	20.8	0	98	21.8	0	111
6/1/2009	23.2	0.0	100.0	22.8	0	100.0	22.0	0	98	23.3	0	111
6/2/2009	24.3	0.0	100.0	24.3	0	100.0	25.1	0	98	24.9	0	111
6/3/2009	24.6	0.0	100.0	22.9	0	100.0	24.7	0	98	24.2	0	111
6/4/2009	23.8	0.0	100.0	22.5	0	100.0	22.3	0	98	23.2	0	111
6/5/2009	22.9	0.0	100.0	21.8	0	100.0	22.2	0	98	22.8	0	111
6/6/2009	21.2	0.0	100.0	22.0	0	100.0	21.7	0	98	20.8	0	111
6/7/2009	19.7	0.0	100.0	18.7	0	100.0	18.5	0	98	19.4	0	111
6/8/2009	19.0	0.0	100.0	17.7	0	100.0	17.9	0	98	18.9	0	111
6/9/2009	22.4	0.0	100.0	21.3	0	100.0	20.8	0	98	21.8	0	111
6/10/2009	23.2	0.0	100.0	22.1	0	100.0	21.2	0	98	21.7	0	111
6/11/2009	21.3	0.0	100.0	20.9	0	100.0	20.8	0	98	21.2	0	111
6/12/2009	21.1	0.0	100.0	20.1	0	100.0	20.0	0	98	21.1	0	111

6/13/2009	21.0	0.0	100.0	19.6	0	100.0	19.6	0	98	20.2	0	111
6/14/2009	17.8	0.0	100.0	17.3	0	100.0	17.4	0	98	18.0	0	111
6/15/2009	19.8	0.0	100.0	18.7	0	100.0	18.9	0	98	20.1	0	111
6/16/2009	19.6	0.0	100.0	19.2	0	100.0	18.9	1	97	19.7	0	111
6/17/2009	19.3	0.0	100.0	18.8	0	100.0	18.8	0	97	19.1	0	111
6/18/2009	20.0	0.0	100.0	19.6	0	100.0	19.9	1	96	20.3	0	111
6/19/2009	18.9	0.0	100.0	18.7	0	100.0	18.7	1	95	18.6	0	111
6/20/2009	19.4	0.0	100.0	18.6	0	100.0	18.1	0	95	18.3	0	111
6/21/2009	16.8	0.0	100.0	16.1	0	100.0	16.2	1	94	16.5	0	111
6/22/2009	17.3	0.0	100.0	16.3	0	100.0	16.5	0	94	16.9	0	111
6/23/2009	22.4	0.0	100.0	20.9	0	100.0	21.1	0	94	22.1	0	111
6/24/2009	22.1	0.0	100.0	20.8	0	100.0	21.2	0	94	22.1	0	111
6/25/2009	20.8	0.0	100.0	19.5	0	100.0	20.4	0	94	20.2	0	111
6/26/2009	19.6	0.0	100.0	19.7	0	100.0	19.7	0	94	20.7	0	111
6/27/2009	20.2	0.0	100.0	19.8	0	100.0	20.0	0	94	20.1	0	111
6/28/2009	22.4	0.0	100.0	20.8	0	100.0	21.1	0	94	21.8	0	111
6/29/2009	22.1	0.0	100.0	21.0	1	100.0	20.9	0	94	21.3	0	110
6/30/2009	22.6	0.0	100.0	20.7	0	100.0	20.3	0	94	22.2	0	110
7/1/2009	22.1	0.0	100.0	20.4	0	100.0	20.8	0	94	22.6	0	110
7/2/2009	23.4	0.0	100.0	21.9	0	100.0	21.8	0	94	22.3	0	110
7/3/2009	24.3	0.0	100.0	22.4	0	100.0	22.5	0	94	23.2	0	110
7/4/2009	24.6	0.0	100.0	22.3	0	100.0	23.0	0	94	24.0	0	110
7/5/2009	21.8	0.0	100.0	20.9	0	100.0	21.0	0	94	21.8	0	110
7/6/2009	17.3	0.0	100.0	16.9	0	100.0	16.9	0	94	17.1	0	110
7/7/2009	22.4	0.0	100.0	20.4	0	100.0	22.2	0	94	20.1	0	110
7/8/2009	20.8	0.0	100.0	22.7	0	100.0	19.9	1	93	20.6	0	110
7/9/2009	25.7	0.0	100.0	23.9	0	100.0	24.6	0	93	25.7	0	110
7/10/2009	21.9	0.0	100.0	21.5	0	100.0	21.9	0	93	22.7	0	110
7/11/2009	21.1	0.0	100.0	20.6	0	100.0	20.7	0	93	21.6	0	110
7/12/2009	22.9	0.0	100.0	21.7	0	100.0	22.6	0	93	23.1	0	110
7/13/2009	23.4	0.0	100.0	21.2	0	100.0	23.1	0	93	23.5	0	110
7/14/2009	24.6	0.0	100.0	23.4	0	100.0	24.5	0	93	24.6	0	110
7/15/2009	25.8	0.0	100.0	24.0	1	100.0	24.4	0	93	25.1	0	109
7/16/2009	22.6	1.0	100.0	20.9	0	100.0	21.3	0	92	22.2	1	108
7/17/2009	19.6	1.0	100.0	19.8	0	100.0	18.4	0	91	19.3	0	108
7/18/2009	23.4	0.0	100.0	22.7	0	100.0	22.6	1	90	23.7	1	107
7/19/2009	22.9	0.0	100.0	21.6	0	100.0	21.9	2	88	22.3	0	107
7/20/2009	22.7	0.0	100.0	21.9	0	100.0	21.2	1	87	22.2	1	106
7/21/2009	24.8	0.0	100.0	24.7	0	100.0	25.6	0	87	26.1	0	106
7/22/2009	22.8	1.0	100.0	21.9	0	100.0	22.1	2	84	21.9	0	106
7/23/2009	18.9	0.0	100.0	18.1	0	100.0	17.6	0	84	18.2	0	106

7/24/2009	21.9	0.0	100.0	21.7	0	100.0	20.8	0	84	23.7	0	106
7/25/2009	23.4	0.0	100.0	22.6	0	100.0	21.8	0	84	23.8	0	106
7/26/2009	20.6	0.0	100.0	20.2	0	100.0	19.1	1	83	19.9	0	106
7/27/2009	22.4	1.0	100.0	21.9	0	100.0	22.0	0	82	22.6	0	106
7/28/2009	25.5	0.0	100.0	24.2	1	100.0	23.4	0	82	24.6	0	105
7/29/2009	27.8	0.0	100.0	26.6	0	100.0	26.4	0	82	27.1	0	105
7/30/2009	26.1	0.0	100.0	25.6	0	100.0	25.6	0	82	25.3	0	105
7/31/2009	22.6	3.0	100.0	20.7	1	100.0	21.1	0	79	24.6	0	104
8/1/2009	22.3	1.0	100.0	20.0	2	100.0	20.2	0	78	21.4	0	102
8/2/2009	21.6	1.0	100.0	20.5	0	100.0	21.2	1	76	21.2	0	102
8/3/2009	20.9	0.0	100.0	19.6	0	100.0	19.8	1	75	20.7	0	102
8/4/2009	19.8	1.0	100.0	19.2	0	100.0	18.4	0	74	18.9	0	102
8/5/2009	16.6	0.0	100.0	15.9	0	100.0	15.6	1	73	16.6	0	102
8/6/2009	15.9	0.0	100.0	15.9	0	100.0	15.7	0	73	15.9	0	102
8/7/2009	18.0	1.0	100.0	18.7	0	100.0	17.1	0	72	18.7	0	102
8/8/2009	18.1	0.0	100.0	17.9	0	100.0	17.2	0	72	18.8	0	102
8/9/2009	20.5	0.0	100.0	19.8	0	100.0	19.5	0	72	20.5	0	102
8/10/2009	18.6	0.0	100.0	18.2	0	100.0	17.8	0	72	18.4	0	102
8/11/2009	19.1	0.0	100.0	18.6	0	100.0	18.6	1	71	19.2	0	102
8/12/2009	20.2	0.0	100.0	17.6	0	100.0	19.7	0	71	19.9	0	102
8/13/2009	18.0	0.0	100.0	20.7	0	100.0	17.6	0	71	17.9	0	102
8/14/2009	20.8	0.0	100.0		0	100.0	20.4	0	71	20.2	0	102
8/15/2009	18.4	0.0	100.0		0	100.0	18.0	0	71	19.3	0	102
8/16/2009	16.9	0.0	100.0	17.4	0	100.0	16.9	0	71	18.1	0	102
8/17/2009	17.9	0.0	100.0	17.3	0	100.0		0	71	18.4	0	102
8/18/2009	19.7	0.0	100.0	20.0	0	100.0	18.9	0	71	20.1	0	102
8/19/2009	23.2	0.0	100.0	21.5	0	100.0	21.9	0	71	23.0	0	102
8/20/2009	21.3	0.0	100.0	20.9	0	100.0	20.1	0	71	21.6	0	102
8/21/2009	20.7	0.0	100.0	19.5	0	100.0	19.7	0	71	20.4	0	102
8/22/2009	19.7	0.0	100.0	19.3	0	100.0	18.7	0	71	19.8	0	102
8/23/2009	18.7	0.0	100.0	18.0	0	100.0	17.5	0	71	18.6	0	102
8/24/2009	20.9	0.0	100.0	20.8	0	100.0	19.9	0	71	21.4	0	102
8/25/2009	18.8	0.0	100.0	18.0	0	100.0	17.5	0	71	18.3	0	102
8/26/2009	18.7	0.0	100.0	18.7	0	100.0	17.9	0	71	18.9	0	102
8/27/2009	21.1	0.0	100.0	20.9	0	100.0	20.8	0	71	21.4	0	102
8/28/2009	19.7	0.0	100.0	20.0	0	100.0	19.8	0	71	20.1	0	102
8/29/2009	19.8	0.0	100.0	19.6	0	100.0	19.7	0	71	20.4	0	102
8/30/2009	19.5	0.0	100.0	20.4	0	100.0	19.6	0	71	20.4	0	102
8/31/2009	19.8	0.0	100.0	20.3	0	100.0	19.1	0	71	20.5	0	102
9/1/2009	19.9	0.0	100.0	20.5	0	100.0	20.4	0	71	20.7	0	102
9/2/2009	18.7	0.0	100.0	18.4	0	100.0	18.3	0	71	18.6	0	102

9/3/2009	18.5	0.0	100.0	18.2	0	100.0	18.1	0	71	19.2	0	102
9/4/2009	19.1	0.0	100.0	18.8	0	100.0	18.6	0	71	20.0	0	102
9/5/2009		0.0	100.0	18.5	0	100.0	18.5	0	71	19.7	0	102
9/6/2009	17.4	0.0	100.0	16.8	0	100.0	17.2	0	71	17.4	0	102
9/7/2009	18.4	0.0	100.0	17.6	0	100.0	18.6	0	71	18.4	0	102
9/8/2009	20.4	0.0	100.0	18.3	0	100.0	19.2	0	71	19.7	0	102
9/9/2009	20.0	0.0	100.0	19.7	0	100.0	19.8	0	71	20.2	0	102
9/10/2009	20.8	0.0	100.0	21.1	0	100.0	20.2	0	71	21.7	0	102
9/11/2009	19.6	0.0	100.0	19.2	0	100.0	19.8	0	71	20.2	0	102
9/12/2009	18.8	0.0	100.0		0	100.0	18.0	0	71	20.0	0	102
9/13/2009	19.4	0.0	100.0	18.8	0	100.0	17.8	0	71	19.4	0	102
9/14/2009	19.4	0.0	100.0	18.3	0	100.0	18.8	0	71	19.3	0	102
9/15/2009	18.4	0.0	100.0	18.1	0	100.0	18.1	0	71	18.9	0	102
9/16/2009	17.4	0.0	100.0	17.4	0	100.0	17.5	0	71	18.0	0	102
9/17/2009	18.3	0.0	100.0	18.6	0	100.0	18.4	0	71	18.3	0	102
9/18/2009	17.5	0.0	100.0	17.9	0	100.0	17.8	0	71	18.7	0	102
9/19/2009	18.7	0.0	100.0	18.0	0	100.0	18.0	0	71	18.6	0	102
9/20/2009	20.9	0.0	100.0		0	100.0	21.3	0	71		0	102
9/21/2009	21.7	0.0	100.0	21.6	0	100.0		0	71	21.9	0	102
9/22/2009	18.7	0.0	100.0	18.8	0	100.0	18.4	0	71	19.7	0	102
9/23/2009	19.7	0.0	100.0	18.8	0	100.0	19.0	0	71	19.6	0	102
9/24/2009	17.5	0.0	100.0		0	100.0	17.3	0	71	18.2	0	102
9/25/2009	16.6	0.0	100.0	16.4	0	100.0	16.3	0	71	17.1	0	102
9/26/2009	16.9	0.0	100.0	16.1	0	100.0	16.4	0	71	16.8	0	102
9/27/2009	14.7	0.0	100.0	15.2	0	100.0	14.2	0	71	15.4	0	102
9/28/2009	14.6	0.0	100.0	14.1	0	100.0	13.9	0	71	14.9	0	102
9/29/2009	18.9	0.0	100.0		0	100.0	18.4	0	71	19.7	0	102
9/30/2009	18.4	0.0	100.0	19.1	0	100.0	18.1	0	71	19.3	0	102
10/1/2009	20.2	0.0	100.0	20.8	0	100.0	20.6	0	71	19.9	0	102
10/2/2009	20.7	0.0	100.0	20.6	0	100.0	21.0	0	71	20.1	0	102
10/3/2009	17.8	0.0	100.0	19.9	0	100.0	17.6	0	71	18.7	0	102
10/4/2009	21.2	0.0	100.0	19.1	0	100.0	18.9	0	71	19.9	0	102
10/5/2009	19.7	0.0	100.0	19.2	0	100.0	19.0	0	71	19.7	0	102
10/6/2009	19.9	0.0	100.0	18.9	0	100.0	19.2	0	71	19.6	0	102
10/7/2009	21.6	0.0	100.0	19.9	0	100.0	20.9	0	71	19.4	0	102
10/8/2009	21.2	0.0	100.0	19.8	0	100.0	20.8	0	71	20.8	0	102
10/9/2009	21.1	0.0	100.0	20.1	0	100.0	20.5	0	71	20.1	0	102
10/10/2009	20.8	0.0	100.0		0	100.0	20.1	0	71	18.2	0	102
10/11/2009	18.3	0.0	100.0	15.8	0	100.0	18.4	0	71	18.1	0	102
10/12/2009	17.2	0.0	100.0	16.7	0	100.0	17.1	0	71	18.0	0	102
10/13/2009	18.4	0.0	100.0	18.9	0	100.0	17.5	0	71	17.3	0	102

10/14/2009	19.7	0.0	100.0	19.6	0	100.0	19.3	0	71	20.1	0	102
10/15/2009	20.5	0.0	100.0	19.8	0	100.0	20.1	0	71	21.1	0	102
10/16/2009	21.2	0.0	100.0	21.6	0	100.0	22.2	0	71	22.1	0	102
10/17/2009	23.6	0.0	100.0	22.2	0	100.0	22.1	0	71		0	102
10/18/2009	24.5	0.0	100.0	23.1	0	100.0	22.6	0	71		0	102
10/19/2009	22.7	0.0	100.0	21.2	0	100.0	21.4	0	71	21.8	0	102
10/20/2009	20.3	0.0	100.0	19.8	0	100.0	20.6	0	71	19.9	0	102
10/21/2009	21.1	0.0	100.0	20.0	0	100.0	20.7	0	71	20.9	0	102
10/22/2009		0.0	100.0	20.1	0	100.0	18.7	0	71		0	102
10/23/2009		0.0	100.0	19.4	0	100.0	19.0	0	71	19.8	0	102
10/24/2009	19.6	0.0	100.0	20.2	0	100.0		0	71		0	102
10/25/2009	17.2	0.0	100.0	18.7	0	100.0		0	71		0	102
10/26/2009	15.9	0.0	100.0	16.9	0	100.0		0	71	16.2	0	102

Table 8. 2009 Woodland Park Zoo later rearing interval, Conboy Lake

Date	Test C-T6 Temp	Test C-T6 Dead	Test C-T6 Total Pop	Surplus C-T5 Temp	Surplus C-T5 Dead	Surplus C-T5 Total Pop	Surplus C-T7 Temp	Surplus C-T7 Dead	Surplus C-T7 Total Pop
5/12/2009	18.8	0	100	18.6	0	100	18.7	0	24
5/13/2009	17.9	0	100	17.6	0	100	17.1	0	24
5/14/2009	18.4	0	100	17.9	0	100	17.7	0	24
5/15/2009	20.4	0	100	20.7	0	100	20.6	0	24
5/16/2009	19.4	0	100	19.0	0	100	19.4	0	24
5/17/2009	21.6	0	100	21.3	0	100	20.8	0	24
5/18/2009	22.1	0	100	22.0	0	100	22.1	0	24
5/19/2009	19.3	0	100	19.2	0	100	18.6	0	24
5/20/2009	17.1	0	100	16.3	0	100	18.6	0	24
5/21/2009	22.1	0	100	23.6	0	100	21.4	0	24
5/22/2009	18.6	0	100	22.5	0	100	16.4	0	24
5/23/2009	21.0	0	100	21.5	0	100	19.6	0	24
5/24/2009	21.1	0	100	21.4	0	100	19.2	0	24
5/25/2009	21.9	0	100	21.4	0	100	20.2	0	24
5/26/2009	21.6	0	100	21.3	0	100	20.2	0	24
5/27/2009	21.8	0	100	21.7	0	100	20.4	0	24
5/28/2009	22.6	0	100	22.3	0	100	20.8	0	24
5/29/2009	21.9	0	100	21.8	0	100	21.2	0	24
5/30/2009	24.0	0	100	24.4	0	100	22.8	0	24
5/31/2009	22.7	0	100	22.6	0	100	21.7	0	24
6/1/2009	23.0	0	100	23.5	0	100	22.3	0	24
6/2/2009	24.3	0	100	25.3	0	100	24.9	0	24

Date	Test C-T6 Temp	Test C-T6 Dead	Test C-T6 Total Pop	Surplus C-T5 Temp	Surplus C-T5 Dead	Surplus C-T5 Total Pop	Surplus C-T7 Temp	Surplus C-T7 Dead	Surplus C-T7 Total Pop
6/3/2009	23.9	0	100	25.1	0	100	24.5	0	24
6/4/2009	24.4	0	100	24.9	0	100	22.3	0	24
6/5/2009	22.7	0	100	24.2	0	100	21.2	0	24
6/6/2009	21.7	0	100	21.1	0	100	21.7	0	24
6/7/2009	19.3	0	100	19.4	0	100	18.6	0	24
6/8/2009	18.6	0	100	18.6	0	100	17.7	0	24
6/9/2009	21.9	0	100	22.6	0	100	20.8	0	24
6/10/2009	23.6	0	100	24.6	0	100	21.8	0	24
6/11/2009	22.2	0	100	22.1	0	100	20.3	0	24
6/12/2009	22.4	0	100	22.8	0	100	21.0	0	24
6/13/2009	22.1	0	100	22.7	0	100	20.4	0	24
6/14/2009	18.4	0	100	17.7	0	100	19.1	0	24
6/15/2009	20.2	0	100	18.8	0	100	20.2	0	24
6/16/2009	17.6	0	100	16.9	0	100	17.8	0	24
6/17/2009	18.9	0	100	18.7	0	100	19.3	0	24
6/18/2009	20.1	0	100	19.7	0	100	20.7	0	24
6/19/2009	19.4	0	100	18.8	0	100	19.7	0	24
6/20/2009	18.9	0	100	18.3	0	100	20.3	0	24
6/21/2009	16.9	0	100	16.2	0	100	17.2	0	24
6/22/2009	17.1	0	100	16.4	0	100	17.2	0	24
6/23/2009	21.9	0	100	20.9	0	100	22.3	0	24
6/24/2009	22.5	0	100	21.9	0	100	22.4	0	24
6/25/2009	19.4	0	100	20.4	0	100	20.8	0	24
6/26/2009	19.8	0	100	19.7	0	100	20.5	0	24
6/27/2009	20.6	0	100	20.4	0	100	20.1	0	24
6/28/2009	22.7	0	100	21.3	0	100	23.2	0	24
6/29/2009	22.1	0	100	20.4	0	100	21.4	0	24
6/30/2009	23.7	0	100	21.9	0	100	24.1	0	24
7/1/2009	22.7	0	100	21.3	0	100	21.7	0	24
7/2/2009	23.8	0	100	22.1	0	100	23.5	0	24
7/3/2009	24.9	0	100	22.5	0	100	24.8	0	24
7/4/2009	24.3	0	100	23.3	0	100	24.9	0	24
7/5/2009	21.2	0	100	20.3	0	100	23.6	0	24
7/6/2009	17.3	0	100	16.3	0	100	17.6	0	24
7/7/2009	19.7	0	100	20.2	0	100	20.4	0	24
7/8/2009	22.7	0	100	23.7	0	100	24.7	0	24
7/9/2009	25.4	0	100	27.1	0	124			
7/10/2009	23.0	0	100	24.3	0	124			
7/11/2009	20.0	0	100	20.6	0	124			

Date	Test C-T6 Temp	Test C-T6 Dead	Test C-T6 Total Pop	Surplus C-T5 Temp	Surplus C-T5 Dead	Surplus C-T5 Total Pop	Surplus C-T7 Temp	Surplus C-T7 Dead	Surplus C-T7 Total Pop
7/12/2009	22.2	0	100	24.0	0	124			
7/13/2009	22.1	1	100	23.2	2	121			
7/14/2009	23.5	0	100	24.9	0	121			
7/15/2009	24.9	0	100	26.5	0	121			
7/16/2009	21.9	0	100	22.4	0	121			
7/17/2009	20.1	1	100	20.8	0	120			
7/18/2009	23.1	0	100	24.3	0	120			
7/19/2009	22.7	0	100	23.1	0	120			
7/20/2009	22.7	0	100	23.3	0	120			
7/21/2009	26.6	0	100	26.2	0	120			
7/22/2009	22.9	0	100	24.6	0	120			
7/23/2009	18.3	0	100	19.0	0	120			
7/24/2009	22.4	0	100	22.9	0	120			
7/25/2009	23.4	0	100	23.8	0	120			
7/26/2009	20.8	0	100	21.0	0	120			
7/27/2009	22.8	0	100	23.4	0	120			
7/28/2009	24.6	0	100	26.6	0	120			
7/29/2009	26.6	0	100	28.9	0	120			
7/30/2009	27.3	0	100	28.7	0	120			
7/31/2009	21.9	0	100	22.4	0	120			
8/1/2009	21.2	0	100	22.1	1	119			
8/2/2009	20.8	0	100	21.2	0	119			
8/3/2009	20.4	0	100	20.7	0	119			
8/4/2009	19.7	0	100	21.4	0	119			
8/5/2009	16.3	0	100	16.7	0	119			
8/6/2009	15.9	0	100	16.4	0	119			
8/7/2009	18.5	1	100	19.6	0	118			
8/8/2009	17.5	0	100	18.0	0	118			
8/9/2009	18.9	0	100	20.2	0	118			
8/10/2009	17.8	0	100	19.0	0	118			
8/11/2009	18.4	0	100	19.6	0	118			
8/12/2009	19.5	0	100	20.2	0	118			
8/13/2009	17.6	0	100	17.9	0	118			
8/14/2009	20.7	0	100	21.6	0	118			
8/15/2009	18.1	0	100	18.0	0	118			
8/16/2009	17.7	0	100	17.4	0	118			
8/17/2009	17.5	0	100	18.7	0	118			
8/18/2009	19.6	0	100	20.6	0	118			
8/19/2009	23.3	0	100	25.3	0	118			

Date	Test C-T6 Temp	Test C-T6 Dead	Test C-T6 Total Pop	Surplus C-T5 Temp	Surplus C-T5 Dead	Surplus C-T5 Total Pop	Surplus C-T7 Temp	Surplus C-T7 Dead	Surplus C-T7 Total Pop
8/20/2009	21.2	0	100	23.2	1	117			
8/21/2009	21.1	0	100	21.7	0	117			
8/22/2009	18.4	0	100	19.8	0	117			
8/23/2009	17.6	0	100	18.3	0	117			
8/24/2009	21.9	0	100	22.2	0	117			
8/25/2009	17.8	0	100	18.9	0	117			
8/26/2009	18.2	0	100	19.7	0	117			
8/27/2009	22.6	0	100	23.1	0	117			
8/28/2009	19.8	0	100	20.2	0	117			
8/29/2009	20.3	0	100	20.2	0	117			
8/30/2009		0	100	17.3	0	117			
8/31/2009	21.4	0	100	18.7	0	117			
9/1/2009	20.5	0	100	21.1	0	117			
9/2/2009	19.8	0	100	18.5	0	117			
9/3/2009	18.2	0	100	18.7	0	117			
9/4/2009	18.1	0	100	19.3	0	117			
9/5/2009	18.6	0	100	19.4	0	117			
9/6/2009	17.3	0	100		0	117			
9/7/2009	18.8	0	100	19.3	0	117			
9/8/2009	19.8	0	100	20.0	0	117			
9/9/2009	20.4	0	100	20.1	0	117			
9/10/2009	20.5	1	100	20.8	0	116			
9/11/2009	18.8	1	100	19.3	0	115			
9/12/2009	18.2	0	100	19.6	0	115			
9/13/2009	18.2	0	100	18.8	0	115			
9/14/2009	18.7	0	100	18.9	0	115			
9/15/2009	17.9	0	100	18.6	0	115			
9/16/2009	17.3	0	100	17.8	0	115			
9/17/2009	17.8	0	100	17.7	0	115			
9/18/2009	18.4	0	100	18.2	0	115			
9/19/2009	18.1	0	100	18.7	0	115			
9/20/2009		0	100		0	115			
9/21/2009	21.1	0	100	21.9	0	115			
9/22/2009	17.6	0	100	19.2	0	115			
9/23/2009		0	100	19.4	0	115			
9/24/2009	17.6	0	100	17.8	0	115			
9/25/2009	16.2	0	100	16.8	0	115			
9/26/2009	16.6	0	100	17.6	0	115			
9/27/2009	14.8	0	100	14.7	0	115			

Date	Test C-T6 Temp	Test C-T6 Dead	Test C-T6 Total Pop	Surplus C-T5 Temp	Surplus C-T5 Dead	Surplus C-T5 Total Pop	Surplus C-T7 Temp	Surplus C-T7 Dead	Surplus C-T7 Total Pop
9/28/2009	14.3	0	100	14.7	0	115			
9/29/2009	18.6	0	100	18.6	0	115			
9/30/2009	18.7	0	100	17.3	0	115			
10/1/2009	21.1	0	100	20.6	0	115			
10/2/2009	19.9	0	100	20.4	0	115			
10/3/2009	18.4	0	100		0	115			
10/4/2009	19.9	0	100		0	115			
10/5/2009	19.8	0	100		0	115			
10/6/2009	20.2	0	100	19.4	0	115			
10/7/2009	21.5	0	100	20.6	0	115			
10/8/2009	20.6	0	100	19.8	0	115			
10/9/2009	20.8	0	100	18.8	0	115			
10/10/2009	20.7	0	100	19.3	0	115			
10/11/2009	17.9	0	100	17.1	0	115			
10/12/2009	16.8	1	100	16.1	0	114			
10/13/2009	18.6	0	100	17.6	0	114			
10/14/2009	19.8	0	100	19.3	0	114			
10/15/2009	20.4	0	100	19.1	0	114			
10/16/2009	22.4	0	100	22.1	0	114			
10/17/2009	22.7	0	100	22.2	0	114			
10/18/2009	22.6	0	100	22.2	0	114			
10/19/2009	22.1	0	100	21.2	0	114			
10/20/2009	19.7	0	100	19.4	0	114			
10/21/2009	20.1	0	100	20.9	0	114			
10/22/2009	21.5	0	100	20.6	0	114			
10/23/2009	20.6	0	100	19.9	0	114			
10/24/2009	19.7	0	100		0	114			
10/25/2009	17.8	0	100	16.1	0	114			
10/26/2009	16.7	0	100	16.1	0	114			

Table 9. 2009 Cedar Creek Corrections Center later rearing interval

Date	C-1 Temp	C-1 Dead	C-1 Total Pop
4/30/2009	21.6	0	77
5/1/2009	19.4	0	77
5/2/2009	19.0	0	77
5/3/2009	20.5	0	77
5/4/2009	21.2	0	77

5/5/2009	19.9	0	77
5/6/2009	21.2	0	77
5/7/2009	18.5	0	77
5/8/2009	19.6	0	77
5/9/2009	13.5	0	77
5/10/2009	18.6	0	77
5/11/2009	19.4	0	77
5/12/2009	15.8	0	77
5/13/2009	17.0	0	77
5/14/2009	17.8	0	77
5/15/2009	17.0	0	77
5/16/2009	19.1	0	77
5/17/2009	19.2	0	77
5/18/2009	18.8	0	77
5/19/2009	18.2	0	77
5/20/2009	17.1	0	77
5/21/2009	20.6	0	77
5/22/2009	21.0	0	77
5/23/2009	20.7	0	77
5/24/2009	21.2	0	77
5/25/2009	20.5	0	77
5/26/2009	21.3	0	77
5/27/2009	19.9	2	75
5/28/2009	21.0	0	75
5/29/2009	21.6	1	74
5/30/2009	21.2	0	74
5/31/2009	20.9	0	74
6/1/2009	20.6	0	74
6/2/2009	20.3	0	74
6/3/2009	20.4	0	74
6/4/2009	20.4	0	74
6/5/2009	24.2	0	74
6/6/2009	23.8	0	74
6/7/2009	23.6	0	74
6/8/2009	23.7	0	74
6/9/2009	23.5	0	74
6/10/2009	24.4	2	72
6/11/2009	23.6	0	72
6/12/2009	23.5	0	72
6/13/2009	24.6	0	72
6/14/2009	23.3	0	72

6/15/2009	23.5	0	72
6/16/2009	21.7	0	72
6/17/2009	20.7	0	72
6/18/2009	19.1	0	72
6/19/2009	20.1	0	72
6/20/2009	23.0	0	72
6/21/2009	23.0	0	72
6/22/2009	22.5	0	72
6/23/2009	23.4	0	72
6/24/2009	25.2	0	72
6/25/2009	20.3	0	72
6/26/2009	23.3	0	72
6/27/2009	23.6	1	71
6/28/2009	24.0	0	71
6/29/2009	24.0	0	71
6/30/2009	24.1	0	71
7/1/2009	24.3	0	71
7/2/2009	25.0	0	71
7/3/2009	19.1	0	71
7/4/2009	18.4	0	71
7/5/2009	18.6	0	71
7/6/2009	23.4	1	70
7/7/2009	23.7	0	70
7/8/2009	24.3	0	70
7/9/2009	25.1	0	70
7/10/2009	20.7	0	70
7/11/2009	18.4	0	70
7/12/2009	17.6	1	69
7/13/2009	18.9	0	69
7/14/2009	21.3	0	69
7/15/2009	22.1	0	69
7/16/2009	23.1	0	69
7/17/2009	21.7	0	69
7/18/2009	20.5	0	69
7/19/2009	19.6	0	69
7/20/2009	20.2	0	69
7/21/2009	20.2	0	69
7/22/2009	19.7	0	69
7/23/2009	19.9	0	69
7/24/2009	20.7	0	69
7/25/2009	20.1	0	69

7/26/2009	20.8	0	69
7/27/2009	22.3	0	69
7/28/2009	22.7	0	69
7/29/2009	22.4	0	69
7/30/2009	22.0	0	69
7/31/2009	18.9	0	69
8/1/2009	18.2	0	69
8/2/2009	18.4	0	69
8/3/2009	17.5	0	69
8/4/2009	16.9	0	69
8/5/2009	20.3	0	69
8/6/2009	20.6	0	69
8/7/2009	21.0	1	68
8/8/2009	19.1	0	68
8/9/2009	19.4	0	68
8/10/2009	15.3	0	68
8/11/2009	15.6	0	68
8/12/2009	21.1	0	68
8/13/2009	20.7	0	68
8/14/2009	20.9	0	68
8/15/2009	21.1	0	68
8/16/2009	21.1	0	68
8/17/2009	21.0	0	68
8/18/2009	20.6	0	68
8/19/2009	20.5	0	68
8/20/2009	20.6	0	68
8/21/2009	20.5	0	68
8/22/2009	20.8	0	68
8/23/2009	20.9	0	68
8/24/2009	20.7	0	68
8/25/2009	20.9	0	68
8/26/2009	20.7	0	68
8/27/2009	20.9	0	68
8/28/2009	19.5	0	68
8/29/2009	20.8	0	68
8/30/2009	20.8	0	68
8/31/2009	20.6	0	68
9/1/2009	20.6	0	68
9/2/2009	19.6	0	68
9/3/2009	19.7	0	68
9/4/2009	20.8	0	68

9/5/2009	19.9	0	68
9/6/2009	19.4	0	68
9/7/2009	19.6	0	68
9/8/2009	19.7	0	68
9/9/2009	22.9	0	68
9/10/2009	21.0	0	68
9/11/2009	19.7	0	68
9/12/2009	17.2	0	68
9/13/2009	21.8	0	68
9/14/2009	21.6	0	68
9/15/2009	20.8	0	68
9/16/2009	21.1	0	68
9/17/2009	20.3	0	68
9/18/2009	20.9	0	68
9/19/2009	20.2	0	68
9/20/2009	21.1	0	68
9/21/2009	21.4	0	68
9/22/2009	21.6	0	68
9/23/2009	20.9	0	68
9/24/2009	20.3	0	68
9/25/2009	20.7	0	68
9/26/2009	19.7	1	67
9/27/2009	21.7	0	67
9/28/2009	21.8	0	67
9/29/2009	20.9	0	67
9/30/2009	20.3	0	67
10/1/2009	20.8	0	67
10/2/2009	19.6	0	67
10/3/2009	19.2	0	67
10/4/2009	18.3	0	67
10/5/2009	18.0	0	67
10/6/2009	17.8	0	67
10/7/2009	17.8	0	67
10/8/2009	16.8	0	67
10/9/2009	16.4	0	67
10/10/2009	16.9	0	67
10/11/2009	13.9	0	67
10/12/2009	14.8	0	67
10/13/2009	14.2	0	67
10/14/2009	15.8	0	67
10/15/2009	16.1	0	67

10/16/2009	12.5	0	67
10/17/2009	13.4	0	67
10/18/2009	12.2	0	67
10/19/2009	11.9	0	67
10/20/2009	10.4	0	67
10/21/2009	10.8	0	67
10/22/2009	10.3	0	67
10/23/2009	16.3	0	67
10/24/2009	15.0	0	67
10/25/2009	14.0	0	67
10/26/2009	15.0	0	67
10/27/2009	7.8	0	67
10/28/2009	12.2	0	67
10/29/2009	12.9	0	67
10/30/2009	15.8	0	55
10/31/2009	16.1	0	55
11/1/2009	14.3	0	55
11/2/2009	13.6	0	55
11/3/2009	14.4	0	55
11/4/2009	13.1	0	55
11/5/2009	15.3	0	55
11/6/2009	14.3	0	55
11/7/2009	12.2	0	55
11/8/2009	12.9	0	55
11/9/2009	13.9	0	55
11/10/2009	12.8	0	55
11/11/2009	12.3	0	55
11/12/2009	13.1	0	55
11/13/2009	11.8	0	55
11/14/2009	9.4	0	55
11/15/2009	11.5	0	55
11/16/2009	12.9	0	55