Translocation Plan

for

HIDDEN VALLEY

Clark County, Nevada

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Prepared by

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Purpose of translocation: Research

Critical Habitat Unit: Mormon Mesa

Recovery Unit: Northeastern Mojave

Recipient site land ownership: US Bureau of Land Management, US Fish and Wildlife Service

Action permitted by federal and state wildlife agencies? (list permits, BOs): Yes;
federal: TE-030659-8 (USGS-Amended Action Submitted), FWSDTRO-1 (USFWS)
state: S36421 (USGS-Amended Action Submitted), S34362 (USFWS)
BO: 2013-F-0273

Date of proposed translocation: Fall 2013 or Spring 2014

Source of translocatees: Desert Tortoise Conservation Center, Clark County, Nevada

Number of translocatees: 30 adults (maximum 60)

Translocation Plan Narrative

Site Description

The Hidden Valley(HV) translocation site encompasses approximately 31,405 acres (127.1 km^2) of public lands managed by the United States Bureau of Land Management and the United States Fish and Wildlife Service. Hidden Valley is located in Clark County, Nevada, immediately south of Coyote Springs Valley and approximately 90 km north of Las Vegas along Highway 93. It is in the Mojave desert tortoise's Northeastern Mojave Recovery Unit and the Mormon Mesa Critical Habitat Unit (Figure 1). The western portion of the site is generally defined by the 1250m elevation contour and includes land along the eastern edge of the U.S. Fish and Wildlife Service's Desert National Wildlife Refuge. Elevation of the site ranges between 829 m and 1250 m. The area is largely dominated by Mojave desertscrub vegetation (Turner 1982) consisting of a creosotebush/white bursage (*Larrea tridentata*/*Ambrosia dumosa*) plant association. On June 22, 2005, lightning strikes started numerous wildfires, collectively called the Southern Nevada Fire Complex (SNFC), burning a significant portion (34.5 km^2 or 27.1%) of the translocation site in Hidden Valley (Figure 1). Similar to other fires in tortoise habitat (Esque et al. 2003, Lovich et al. 2011), the SNFC resulted in the injury and death of desert tortoises (Drake et al. 2012) and resulted in dramatic changes in plant species richness, composition, and structure at this site (Drake et al. In Prep).

The fire reduced live perennial cover at Hidden Valley by >90%, and perennial cover has remained low since 2006 (Drake et al. In prep). Annual plant production has varied among years, with lower production observed in 2007, 2008, and 2012, and was correlated with the amount of average winter/spring precipitation. Native annual plant production did not vary between habitat types (unburned and burned); however, nonnative plant production was consistently greater in burned than unburned areas and generally consisted of a 10-fold production increase. Tortoises occupying unburned habitat predominantly selected *Ambrosia dumosa*-a short shrub, *Larrea tridentata*-a tall evergreen shrub, and *Yucca schidigera*-a tall succulent as cover species. Within burned habitat, tortoises continued to use dead *A. dumosa*, dead *L. tridentata*, and dead *Y. schidigera*; however, tortoises shifted a portion of shade use to live *Sphaeralcea ambigua*-an herbaceous perennial, starting in 2009 as herbaceous plants had increased in cover after the fire providing bigger and potentially better shade resources (Drake et al. In Prep).

Habitat Considerations

The release areas for tortoises to be translocated at Hidden Valley have been selected in adjacent unburned and burned desert tortoise habitat. Potential hazards within 6.5 km of the release areas include Highway 93 (paved) and a few unimproved dirt roads (Figure 1). However, desert tortoise exclusion fencing has been installed along Highway 93, extending beyond the expected dispersal distance of translocated tortoises, thereby preventing tortoises from accessing the highway; all unimproved dirt roads are lightly traveled by the public. There are no utility corridors or any proposals to dispose of public lands within this site. While a 6.5km radius around the release area is expected to contain the post-release movements of most adult desert tortoises, little is known about the movements of desert tortoises released within habitat burned by wildfire. As stated above, much of the habitat at the site burned in 2005, and some concerns regarding the welfare of tortoises released into burned areas are likely. We have monitored a study population of animals in the area, and tortoises are readily using burned areas. In fact,

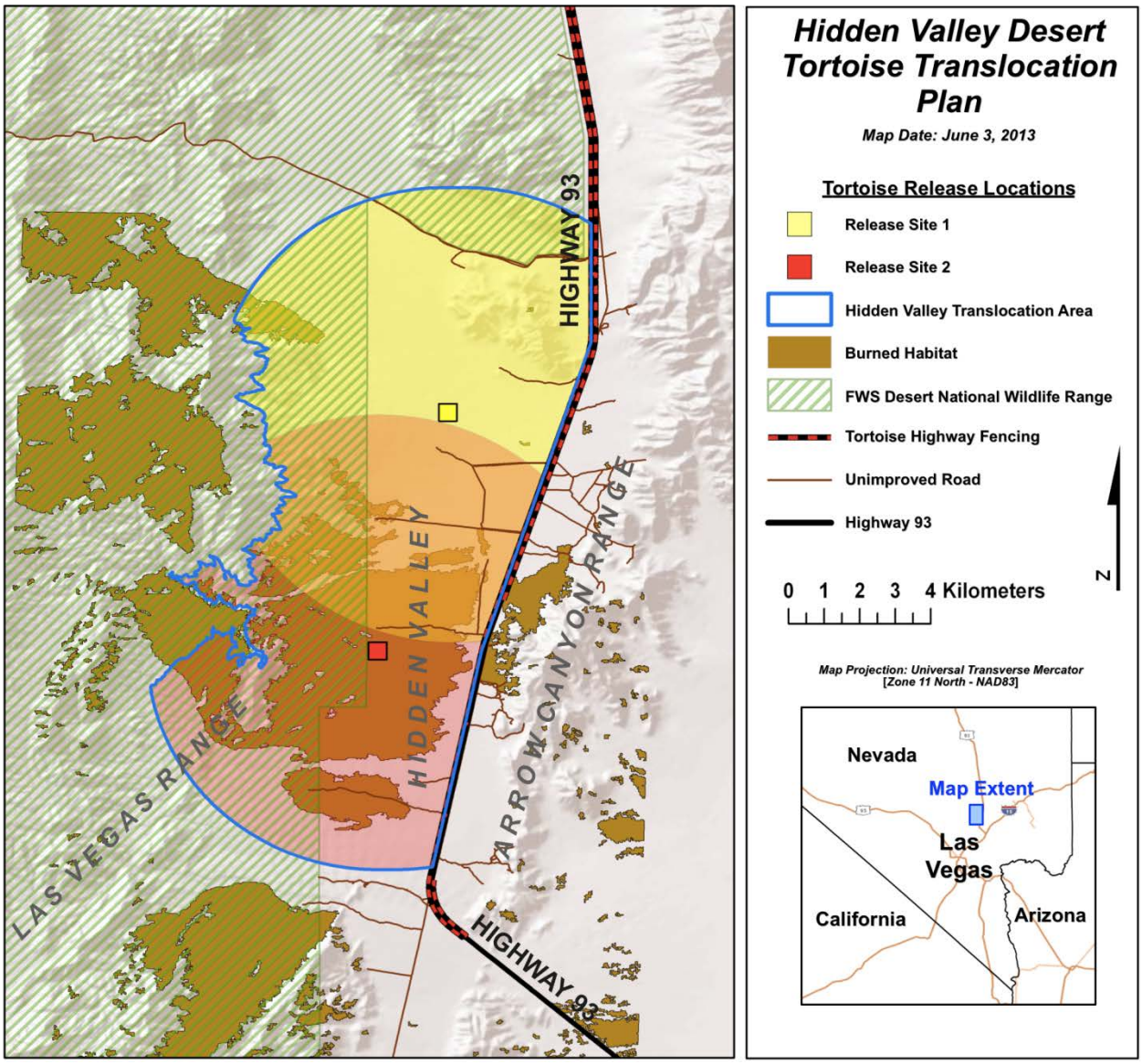

Figure 1. Proposed release areas for translocated desert tortoises (*Gopherus agassizii*) in unburned (indicated by a yellow square) and burned (indicated by a red square) habitat at Hidden Valley, Clark County, Nevada. Arcs (up to the 1250m elevation contour of the Las Vegas Range) indicate the distance (6.5km radius from release) that has previously been shown to contain 97.5% of the first-year dispersal movements of translocated tortoises (USFWS, unpubl. data).

some animals are living entirely within burned habitat, and there is evidence of increased forage available to tortoises in burned areas.

Density/Trends of Resident Tortoise Population

Previous surveys of the Coyote Springs Valley portion of the Mormon Mesa critical habitat unit, within which Hidden Valley lies, indicated a patchy distribution of desert tortoises with average densities ranging between 1.2 and 5.5 adult tortoises/km^2, averaging 2.7 tortoises/km^2 over the last five years (USFWS 2009, 2012a-d). Since 2006, the USGS has extensively monitored a subset of resident adult tortoises (n=53; 22 male and 31 female) occupying both unburned and burned habitat at the Hidden Valley site (Drake et al. In Prep). Wildfire is known to kill desert tortoises directly by burning, and likely by exposure to extreme high temperatures and smoke inhalation (Esque et al. 2003, McLuckie et al. 2007). Repeated surveys at the Hidden Valley site after the 2005 fire revealed very limited tortoise activity near the core of the fire (K. Drake, *personal obs.*), suggesting that tortoise numbers have declined at the site. Similar studies on Hermann's tortoise (*Testudo hermanni*) and the Greek tortoise (*T. graeca*) have reported higher fire-related mortality occurring near the center of a burn, whereas less mortality was observed near the edge of the fire (Popgeorgiev 2008). While there are few tortoises in expansive burned areas, we suspect that this is due to mortality incurred during the burn or emigration from that area. Release of 30 tortoises at the Hidden Valley site would increase the local density by 0.2 tortoises/km^2, a conservative addition to the population that will provide important information on desert tortoise recovery within burned habitat (see next section).

Specific Goals of Translocation

During the past 30 years, wildfires have dramatically altered desert landscapes occupied by desert tortoises in the southwestern United States. In 2005, alone, wildfire burned 5% of critical habitat for the Mojave desert tortoise. Although wildfire is often attributed to natural causes, much of the increase in fire frequency in tortoise habitat has been attributed to the invasion of alien annual grasses that increase fuel abundance and continuity (Brooks and Esque 2002, Esque and Schwalbe 2002). Direct effects of wildfire on tortoise populations have been well documented and include mortality and injury from incineration and exposure to lethal temperatures (Lyon et al. 1978, Huff and Kapler Smith 2000, Lyon et al. 2000, Esque et al. 2003, McLuckie et al. 2007, Drake et al. 2012). However, limited information exists on the indirect effects of these fires on tortoises and their habitat.

Research at Hidden Valley revealed that desert tortoises readily occupy burned habitat along the edge of the fire perimeter and that tortoises living in and out of the burn had similar patterns in movement, home-range, microhabitat use, behavior, reproduction, and survival (Drake et al. In Prep). Tortoises at Hidden Valley moved regularly between unburned and burned areas and over the last six years have begun to re-colonize burned areas, moving further each year into the burn – some living entirely within habitat that burned. The goals of this research-focused translocation are to build on our prior work to 1) determine if translocation can be used to augment populations of desert tortoises affected by wildfire, 2) document movement and habitat use of tortoises translocated into burned habitat relative to unburned habitat, and 3) determine if a reduction in vegetation cover from wildfire will alter thermal body temperatures of translocated desert tortoises, further influencing their behavior, activity, and habitat selection. Additional goals are to evaluate health of tortoises translocated to burned habitat relative to those translocated to unburned habitat and resident controls.

To faciliate this research, adult desert tortoises (n=30) will be translocated to unburned (15 tortoises) and burned (15 tortoises) habitat (Figure 1). For comparison, a control group of resident tortoises (n=30) currently occupying habitat along the edge of the fire and adjacent unburned habitat at Hidden Valley will be incorporated into the study (Figure 2). We will document movement, shelter use, body temperature, growth, and survival of tortoises translocated to burned landscapes relative to tortoises translocated to unburned habitat and control animals living in a mix of the two habitat conditions. We will evaluate health of tortoises using genetic transcription profiles for immune function and overall fitness (Bowen et al. in prep.) in addition to standard health assessments (USFWS 2013). Gene transcription profiles include genes that are fundamental to immune function, pathogen defense, and metabolism, and this research provides an opportunity to use genetics and associated protein production to identify stressed or diseased animals before clinical disease manifestations. Selecting genes and proteins specific to immune responses with the potential to be influenced by biological, physical, or environmental stressors (e.g., associated with burned habitat) may provide information on the type and magnitude of stressors present in the habitat. If the variables tested result in a measurable difference, it might be important to consider in future conservation management decisions of burned critical habitat for the desert tortoise.

Health Considerations

Health Status of Resident Tortoise Population - Resident adult tortoises (n=53) at Hidden Valley were generally assessed for health most years from 2007 to 2012 (Figure 2). All tortoises had normal body condition scores (4-7) and are presumed healthy. In 2011 and 2012, thorough health assessments were conducted on 34 tortoises (Table 1). We observed a few clinical signs such as mild serous ocular discharge and eroded nares in 7 tortoises. However, these clinical signs were very minor; may reflect associations with other stimuli such as eating, drinking, or allergens; and do not indicate current disease outbreaks at this research site (Brown et al. 1999). In addition, we conducted laboratory tests used to indicate exposure to pathogens such as *Mycoplasma agassizii*, *M. testudineum*, and tortoise herpesvirus-2 (USFWS 2012e). Only one adult tortoise (CS0022) yielded a positive antibody response for *M. testudineum* in 2011 (Table 1). All other tortoises had negative laboratory results for tested pathogens.

Health Status of Translocatees - All tortoises to be translocated will be selected from the collection residing at the Desert Tortoise Conservation Center (DTCC) in Las Vegas. The tortoises came from a variety of origins, many through the pick-up service. The DTCC is operated by San Diego Zoo Global (SDZG), and comprehensive physical exam and sample collection protocols were developed by SDZG veterinarians in collaboration with other health and disease experts (see Attachment 1 for eligibility criteria). These protocols have been adapted from published recommendations (Berry and Christopher 2001) and IUCN guidelines (Woodford 2000). Health-history documentation of all release candidates will be evaluated, and all individuals proposed as release candidates will pass the DTCC's comprehensive health screening, will have a suitable body condition (4-7), will have negative antibody titers to *Mycoplasma agassizii* and *M. testudineum* and will exhibit no clinical signs of disease that preclude them from translocation (Attachment 1; USFWS 2013). A history of repeat evaluations at the DTCC increases the chances of observing an abnormal condition and minimizes the chance of releasing a sick individual.

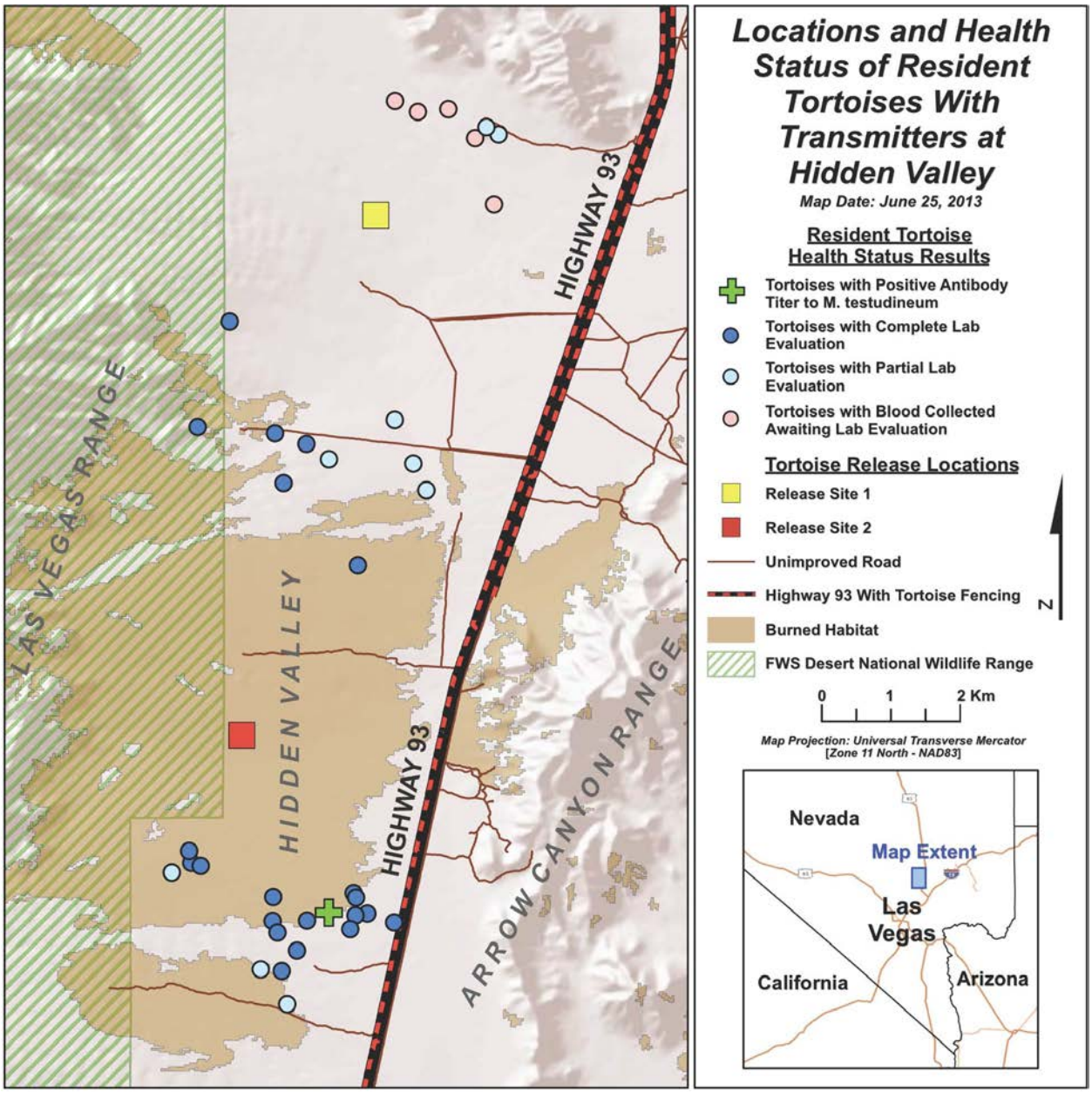

Figure 2. Locations of resident adult desert tortoises (*Gopherus agassizii*) (blue circles) that were evaluated for health between 2007 and 2012. Laboratory tests were not run for all tortoises depicted (see Table 1). One adult tortoise yielded a positive laboratory test result (green cross) for pathogens tested. Proposed release areas for translocated tortoises are indicated in unburned (yellow square) and burned (red square) habitat at Hidden Valley in Clark County, Nevada.

Genetic Considerations

Hidden Valley is located approximately 58 km north-northeast of the DTCC. Moving tortoises within 175 km of the DTCC ensures that the vast majority of tortoises will remain in a genetic unit equivalent to that of their origin (actual locality of genetic origin, not that of the area immediately surrounding the DTCC) (USFWS 2012f). Additionally, the risk of inducing outbreeding depression in desert tortoises is low (USFWS 2012f). Genetic analysis of individuals as a means of selecting tortoises to be translocated is unnecessary. However, several tortoises at the DTCC were brought there from nearby Coyote Springs Valley, and they will be prioritized for release at the Hidden Valley site.

Monitoring

Tortoises will be located using radio-telemetry once within 24 hours of release, a minimum of twice weekly for the first two weeks after release, a minimum of once a week from March through early November, and once every other week from November through February starting three weeks after release. At each sighting, we will record the animal identification number, date and time of capture, geographic location (Universal Transverse Mercator, North American Datum 1983), behavior, microhabitat type, and any interactions with other tortoises. We will document burrows and refugia sites used. Animals will be weighed and measured in the spring each year to document growth patterns. Follow-up health assessments (USFWS 2013) will be conducted each spring and fall. Transmitters will be exchanged as needed to continue tracking animals for at least three years post-release.

Perennial vegetation transects (n=60) will be performed each spring to determine cover availability for translocated tortoises occupying both burned and unburned habitats. In addition, temperature (ibutton) loggers (n=180) will be placed throughout the study site to capture changes in temperature regimes between the habitat types. We will attach temperature (ibutton) loggers to each tortoise (n=60) to determine if the thermal biology of tortoises is different between the habitats.

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Table 1. Health assessment summary table for resident desert tortoises (*Gopherus agassizii*) at Hidden Valley, Nevada, in 2011 and 2012.

Tortoise	Date	Sex	Mass (g)	Attitude/Posture	Body Condition Score	Nasal Discharge	Oral Lesions	Myag ELISA Titer	Myte ELISA Titer	Herpes PCR	Other Defects
CS0002	09/19/2011	F	3680	Normal	6	None	None	<32	<32	Negative	None
CS0002	03/26/2012	F	2260	Normal	5	None	None	N/A	N/A	Negative	None
CS0002	07/18/2012	F	3540	Normal	4	None	None	N/A	N/A	N/A	None
CS0002	09/25/2012	F	3560	Normal	5	None	None	N/A	N/A	N/A	None
CS0004	04/12/2011	F	2800	Normal	6	None	None	N/A	N/A	N/A	None
CS0004	09/19/2011	F	2760	Normal	5	None	None	<32	<32	N/A	None
CS0004	09/28/2011	F	2720	Normal	5	None	None	N/A	N/A	Negative	None
CS0004	03/26/2012	F	2630	Normal	5	None	None	N/A	N/A	Negative	None
CS0004	07/18/2012	F	2700	Normal	5	None	None	N/A	N/A	N/A	None
CS0004	09/25/2012	F	3100	Normal	5	None	None	N/A	N/A	N/A	None
CS0005	04/12/2011	M	3120	Normal	5	None	None	N/A	N/A	N/A	None
CS0005	09/19/2011	M	3400	Normal	6	None	None	N/A	N/A	N/A	None
CS0005	04/24/2012	M	3320	Normal	5	None	None	N/A	N/A	Negative	None
CS0005	07/20/2012	M	3460	Normal	4	None	None	N/A	N/A	N/A	None
CS0005	09/25/2012	M	3380	Normal	5	None	None	N/A	N/A	N/A	None
CS0010	04/13/2011	M	N/A	Normal	6	None	None	N/A	N/A	N/A	None
CS0010	09/29/2011	M	4120	Normal	6	None	None	<32	<32	Negative	None
CS0010	03/27/2012	M	4020	Normal	5	None	None	N/A	N/A	Negative	None
CS0010	07/17/2012	M	4720	Normal	5	None	None	N/A	N/A	N/A	None
CS0010	09/26/2012	M	4840	Normal	6	None	None	N/A	N/A	N/A	None
CS0011	10/14/2011	M	5200	Normal	6	None	None	<32	<32	Negative	None
CS0011	04/05/2012	M	4820	Normal	5	None	None	N/A	N/A	Negative	None
CS0011	07/18/2012	M	5060	Normal	5	None	None	N/A	N/A	N/A	None
CS0011	10/05/2012	M	5220	Normal	5	None	None	N/A	N/A	N/A	None
CS0012	09/28/2011	M	4990	Normal	5	None	None	<32	<32	Negative	None
CS0012	04/05/2012	M	4820	Normal	5	None	None	N/A	N/A	Negative	None
CS0012	07/18/2012	M	5320	Normal	5	None	None	N/A	N/A	N/A	None
CS0012	09/25/2012	M	5140	Normal	5	None	None	N/A	N/A	N/A	None
CS0022	04/12/2011	F	N/A	Normal	5	None	None	N/A	N/A	N/A	None
CS0022	09/28/2011	F	3240	Normal	5	None	None	<32	64	Negative	None
CS0022	03/26/2012	F	2380	Normal	5	None	None	N/A	N/A	Negative	None

CS0022	07/18/2012	F	3220	Normal	5	None	None	N/A	N/A	N/A	None
CS0022	09/25/2012	F	3420	Normal	4	None	None	N/A	N/A	N/A	None
CS0023	04/13/2011	F	2495	Normal	5	None	None	N/A	N/A	N/A	None
CS0023	09/28/2011	F	2920	Normal	5	None	None	<32	<32	Negative	None
CS0023	03/27/2012	F	2920	Normal	5	None	None	N/A	N/A	Negative	None
CS0023	07/17/2012	F	3120	Normal	5	None	None	N/A	N/A	N/A	None
CS0023	09/26/2012	F	3160	Normal	5	None	None	N/A	N/A	N/A	None
CS0024	09/28/2011	F	3200	Normal	5	None	None	N/A	N/A	Negative	None
CS0024	03/27/2012	F	3100	Normal	5	None	None	N/A	N/A	Negative	None
CS0024	07/17/2012	F	2900	Normal	5	None	None	N/A	N/A	N/A	None
CS0024	09/26/2012	F	3240	Normal	5	None	None	N/A	N/A	N/A	None
CS0025	09/29/2011	F	2580	Normal	5	None	None	<32	<32	Negative	None
CS0025	04/03/2012	F	2500	Normal	5	None	None	N/A	N/A	Negative	None
CS0025	07/19/2012	F	2660	Normal	4	None	None	N/A	N/A	N/A	None
CS0025	09/26/2012	F	2820	Normal	5	None	None	N/A	N/A	N/A	None
CS0026	09/29/2011	F	2560	Normal	4	None	None	<32	<32	Negative	None
CS0026	04/03/2012	F	2200	Normal	5	None	None	N/A	N/A	Negative	None
CS0026	07/19/2012	F	2320	Normal	4	None	None	N/A	N/A	N/A	None
CS0026	09/25/2012	F	2480	Normal	4	None	None	N/A	N/A	N/A	None
CS0027	09/28/2011	M	4460	Normal	6	None	None	N/A	N/A	Negative	None
CS0027	07/17/2012	M	4580	Normal	5	None	None	N/A	N/A	N/A	None
CS0027	09/26/2012	M	4600	Normal	5	None	None	N/A	N/A	N/A	None
CS0030	09/19/2011	M	5560	Normal	5	None	None	<32	<32	Negative	None
CS0030	04/05/2012	M	4980	Normal	5	None	None	N/A	N/A	N/A	None
CS0030	07/18/2012	M	5780	Normal	5	None	None	N/A	N/A	N/A	None
CS0030	09/25/2012	M	5460	Normal	5	None	None	N/A	N/A	N/A	None
CS0032	04/13/2011	F	N/A	Normal	5	None	None	N/A	N/A	N/A	None
CS0032	09/29/2011	F	2840	Normal	5	None	None	<32	<32	Negative	None
CS0032	03/27/2012	F	2600	Normal	5	None	None	N/A	N/A	Negative	None
CS0032	07/17/2012	F	2820	Normal	5	None	None	N/A	N/A	N/A	None
CS0032	09/26/2012	F	3040	Normal	4	None	None	N/A	N/A	N/A	None
CS0033	04/12/2011	M	N/A	Normal	7	None	None	N/A	N/A	N/A	None
CS0033	09/29/2011	M	5380	Normal	6	None	None	<32	<32	Negative	None
CS0033	04/05/2012	M	5220	Normal	5	None	None	N/A	N/A	Negative	None
CS0033	07/18/2012	M	5620	Normal	5	None	None	N/A	N/A	N/A	None
CS0033	10/05/2012	M	5300	Normal	5	None	None	N/A	N/A	N/A	None
CS0035	09/19/2011	M	4060	Normal	5	None	None	<32	<32	N/A	None

CS0035	04/05/2012	M	3720	Normal	5	None	None	N/A	N/A	N/A	None
CS0035	07/19/2012	M	3740	Normal	5	None	None	N/A	N/A	N/A	None
CS0035	09/26/2012	M	4280	Normal	5	None	None	N/A	N/A	N/A	None
CS0046	09/19/2011	M	4468	Normal	6	None	None	<32	<32	Negative	None
CS0046	04/24/2012	M	N/A	Normal	5	None	None	N/A	N/A	Negative	None
CS0046	07/18/2012	M	4200	Normal	5	None	None	N/A	N/A	N/A	None
CS0046	09/25/2012	M	4360	Normal	5	None	None	N/A	N/A	N/A	None
CS0049	04/13/2011	F	2740	Normal	5	None	None	N/A	N/A	N/A	None
CS0049	09/30/2011	F	2500	Normal	5	None	None	<32	<32	Negative	None
CS0049	04/03/2012	F	2800	Normal	4	None	None	N/A	N/A	Negative	None
CS0049	07/17/2012	F	2800	Normal	5	None	None	N/A	N/A	N/A	None
CS0049	09/26/2012	F	2920	Normal	5	None	None	N/A	N/A	N/A	None
CS0051	04/13/2011	M	4961	Normal	6	None	None	N/A	N/A	N/A	None
CS0052	09/19/2011	M	4240	Normal	5	None	None	<32	<32	N/A	None
CS0052	04/03/2012	M	4000	Normal	5	None	None	N/A	N/A	Negative	None
CS0052	07/19/2012	M	4340	Normal	5	None	None	N/A	N/A	N/A	None
CS0052	09/25/2012	M	4440	Normal	5	None	None	N/A	N/A	N/A	None
CS0054	09/29/2011	M	4520	Normal	5	None	None	<32	<32	Negative	None
CS0054	04/03/2012	M	4140	Normal	4	None	None	N/A	N/A	Negative	None
CS0054	07/18/2012	M	4620	Normal	5	None	None	N/A	N/A	N/A	None
CS0055	09/28/2011	F	2360	Normal	5	None	None	N/A	N/A	Negative	None
CS0055	03/26/2012	F	2720	Normal	4	None	None	N/A	N/A	N/A	None
CS0055	04/24/2012	F	2780	Normal	N/A	None	None	N/A	N/A	Negative	None
CS0055	07/18/2012	F	2740	Normal	4	None	None	N/A	N/A	N/A	None
CS0055	09/25/2012	F	2800	Normal	4	None	None	N/A	N/A	N/A	None
CS0060	03/26/2012	M	4480	Normal	6	None	None	N/A	N/A	N/A	None
CS0060	07/19/2012	M	4620	Normal	5	None	None	N/A	N/A	N/A	None
CS0060	10/05/2012	M	4820	Normal	5	None	None	N/A	N/A	N/A	None
CS0061	09/29/2011	F	2960	Normal	5	None	None	<32	<32	N/A	None
CS0061	04/03/2012	F	3100	Normal	4	None	None	N/A	N/A	N/A	None
CS0061	07/17/2012	F	3240	Normal	4	None	None	N/A	N/A	N/A	None
CS0061	07/24/2012	F	3280	Normal	4	None	None	N/A	N/A	N/A	None
CS0061	09/26/2012	F	3280	Normal	4	None	None	N/A	N/A	N/A	None
CS0062	03/27/2012	F	N/A	Normal	5	None	None	N/A	N/A	N/A	None
CS0062	04/24/2012	F	2860	Normal	N/A	None	None	N/A	N/A	N/A	None
CS0063	07/17/2012	F	2900	Normal	4	None	None	N/A	N/A	N/A	None
CS0063	09/26/2012	F	3020	Normal	4	None	None	N/A	N/A	N/A	None

CS0064	09/30/2011	F	2520	Normal	5	None	None	<32	<32	N/A	None
CS0064	03/26/2012	F	2600	Normal	5	None	None	N/A	N/A	N/A	None
CS0064	07/19/2012	F	2700	Normal	5	None	None	N/A	N/A	N/A	None
CS0064	10/05/2012	F	2780	Normal	5	None	None	N/A	N/A	N/A	None
CS0065	03/27/2012	F	3660	Normal	6	None	None	N/A	N/A	N/A	None
CS0065	07/17/2012	F	3780	Normal	4	None	None	N/A	N/A	N/A	None
CS0065	09/26/2012	F	4040	Normal	5	None	None	N/A	N/A	N/A	None
CS0066	03/27/2012	F	2340	Normal	5	None	None	N/A	N/A	N/A	None
CS0066	04/03/2012	F	2420	Normal	4	None	None	N/A	N/A	N/A	None
CS0066	07/17/2012	F	2760	Normal	5	None	None	N/A	N/A	N/A	None
CS0066	09/26/2012	F	2980	Normal	4	None	None	N/A	N/A	N/A	None
CS0073	04/20/2012	F	N/A	Normal	5	None	None	N/A	N/A	N/A	None
CS0073	07/19/2012	F	1740	Normal	N/A	None	None	N/A	N/A	N/A	None
CS0077	09/25/2012	F	3760	Normal	4	None	None	<32	<32	Negative	None
FW6752	04/12/2011	F	3140	Normal	6	None	None	N/A	N/A	N/A	None
FW6752	10/19/2011	F	3160	Normal	5	None	None	<32	<32	Negative	None
FW6752	03/26/2012	F	3000	Normal	5	None	None	N/A	N/A	N/A	None
FW6752	04/24/2012	F	3240	Normal	N/A	None	None	N/A	N/A	Negative	None
FW6752	07/18/2012	F	3300	Normal	5	None	None	N/A	N/A	N/A	None
FW6752	10/05/2012	F	3300	Normal	5	None	None	N/A	N/A	N/A	None
FW6758	04/12/2011	M	4680	Normal	6	None	None	N/A	N/A	N/A	None
FW6758	09/19/2011	M	4900	Normal	5	None	None	<32	<32	Negative	None
FW6758	09/28/2011	M	4720	Normal	6	None	None	<32	<32	Negative	None
FW6758	03/26/2012	M	4680	Normal	6	None	None	N/A	N/A	Negative	None
FW6758	07/18/2012	M	4780	Normal	5	None	None	N/A	N/A	N/A	None
FW6758	09/26/2012	M	5060	Normal	5	None	None	N/A	N/A	N/A	None
FW7850	09/29/2011	F	3260	Normal	5	None	None	<32	<32	Negative	None
FW7850	04/05/2012	F	3180	Normal	4	None	None	N/A	N/A	Negative	None
FW7850	07/19/2012	F	3220	Normal	5	None	None	N/A	N/A	N/A	None
FW7850	10/05/2012	F	3320	Normal	5	None	None	N/A	N/A	N/A	None

Attachment 1

Draft Health Eligibility Criteria
2013 Translocation from DTCC to Hidden Valley

Initial Assessment of Pen Group Eligibility

- Assess **all** individuals occupying pen concurrently.
- The pen group is preliminarily deemed eligible if no tortoises in the pen have signs of disease.
- If one or more tortoises in the pen show mild to moderate signs of disease, the pen is not eligible for release and all tortoises in pen will be treated and observed with re-assessment for eligibility after 3 months.
- If one or more tortoises in the pen has a Body Condition Score $\leq$ 3 and/or moderate to severe signs of disease, those individuals receive a follow-up health assessment immediately, and the pen is quarantined for 30 days.

Individual Eligibility

- Pre-release comprehensive health assessment, which includes a full physical exam and collection and banking of biological samples (blood, choanal swab, cloacal swab) conducted.
- Negative antibody titers (via ELISA) for *Mycoplasma agassizii* and *Mycoplasma testudinum*.
- Normal behavior for season and time of day
- Normal bodily functions
- No active signs of communicable disease
- Serous 1 nasal and/or ocular discharge **does not disqualify** a tortoise from eligibility if there is no scarring or missing scales around the nares and no other health issues
- No oral lesions
- No white oral cavity
- No bladder stones
- No ectoparasites
- No generalized skin conditions
- Body Condition Score 4-7
- History of maintained or increased weight
- 4 legs and normal ambulation
- No gross disfigurements such as severely flattened carapace, unusually domed or peaked carapace, or grossly enlarged carapace
- Midline carapace length $\leq$ 330 mm

Final approval for release will be given by the DTCC's Conservation Program Specialist or DVM after review of assessments.