

# Walton Ranch and Cascadia Warehouse Bat Site Management Plan

November 1, 2019  
Sweet Home Ranger District  
Willamette National Forest

## Prepared by:

/s/ Esmeralda Bracamonte

11/1/2019

*Esmeralda Bracamonte, District Wildlife Biologist*

*Date*

## Reviewed by:

/s/ Joe Doerr

10/21/2019

*Joe Doerr, Forest Wildlife Biologist, Willamette National Forest*

*Date*

/s/ Rob Huff

Date 10/23/2019

*Rob Huff, Conservation Planning Coordinator, Interagency Special Status-Sensitive Species Program  
for BLM & Forest Service*

## Approved by:

/s/ Nikki Swanson

11/7/2019

*Nikki Swanson, District Ranger, Sweet Home RD, Willamette National Forest*

*Date*

**SITE NAME:** Walton Ranch and Cascadia Warehouse

**TARGET SPECIES:** Townsend's Big-eared Bat (*Corynorhinus townsendii*), *Myotis* Bat Species

**LEGAL DESCRIPTION:**

*Walton Ranch*

The Walton Ranch Site is located on the Sweet Home Ranger District of the Willamette National Forest, approximately 10 miles east of the community of Cascadia, Oregon in Linn County (Figure 1). Elevation is approximately 1200 feet (366 meters). Township 13S Range 4E Section 32; Latitude-Longitude: 44.40°N, 122.35°W; UTM: 0551440 Easting, 4916312 Northing (UTM Zone 10, Nad83). The Walton Ranch lies within the sixth field sub-watershed known as South Santiam River/Trout Creek (170900060401).

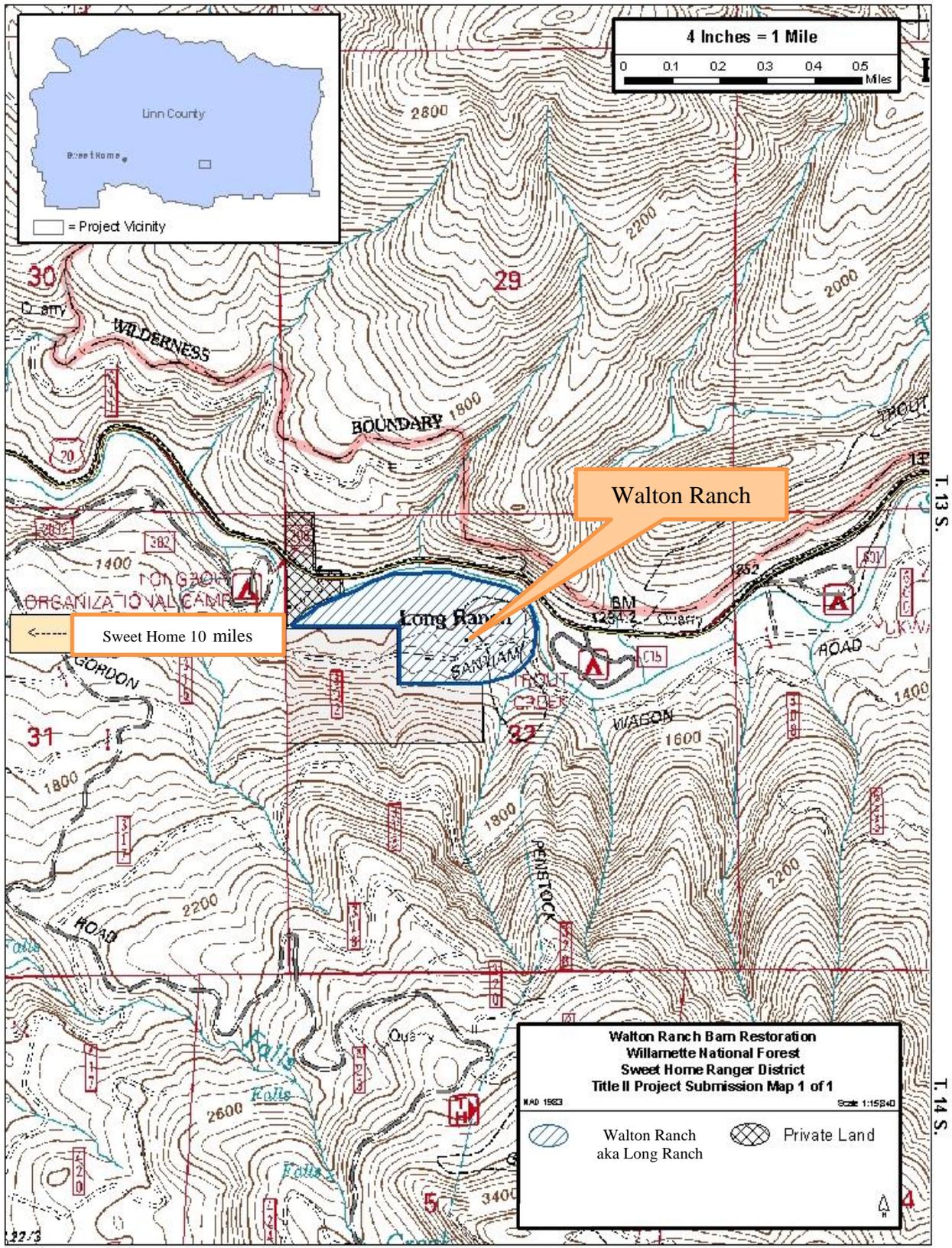
*Cascadia Administration Site*

The Cascadia Administrative Site is located in the community of Cascadia in Linn County, Oregon, west of the Sweet Home Ranger District of the Willamette National Forest (Figure 2). Elevation is approximately 900 feet (274 meters). Township 13S Range 2E Section 36; Latitude-Longitude: 44.39°N, 122.49°W; UTM: 539130 Easting 4915224 Northing (UTM Zone 10, Nad83). The warehouse lies within the sixth field sub-watershed known as South Santiam River/Shot Pouch Creek (170900060402).

**GOAL OF THE MANAGEMENT PLAN:**

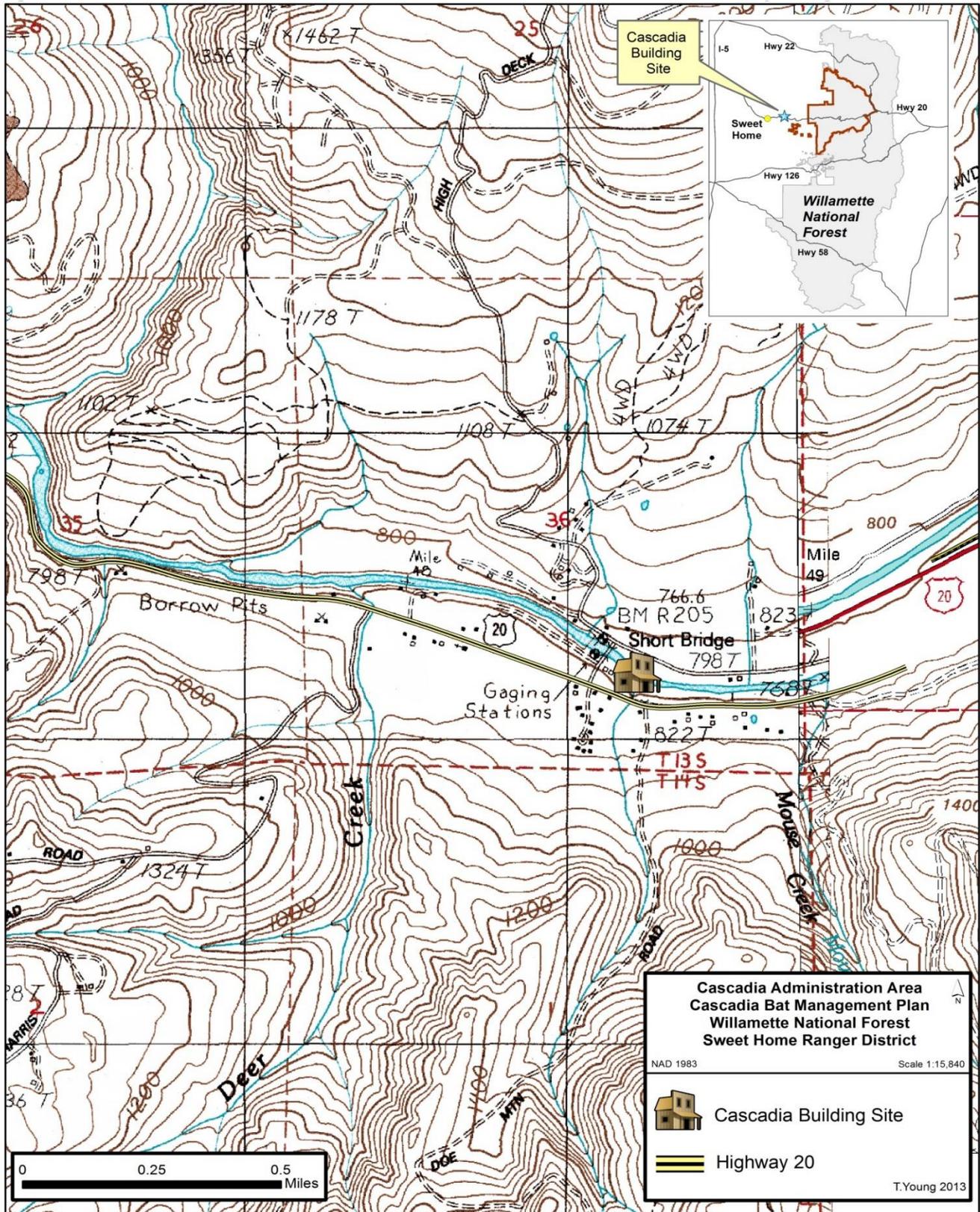
The Walton Ranch serves as a roost site for numerous bats, which may include *Corynorhinus townsendii*, *Myotis yumanensis* and *Myotis lucifugus*. The Cascadia warehouse supports one of only a few confirmed sites for male *C. townsendii* individuals on the Sweet Home Ranger District, in addition to a maternity colony for *myotis* bat species. The *C. townsendii* are considered a sensitive species in Region 6 by the Forest Service and its presence at the site is significant. Building structures used by bats at both sites are deteriorating. The goal of this 10-year site management plan for Walton Ranch and the Cascadia site is to provide an informative background on the history and use of the sites, and identify options for managing the sites into the future in such a way that they will sustain long-term use by established populations of *C. townsendii* and other species of bats and provide for public safety. This plan is considered dynamic and can be amended as conditions change with the concurrence of the Forest and/or Sweet Home District Wildlife Biologist. All proposed changes will be reviewed for consistency with regional policy. This Plan will be revisited and revised at the end of 10 years or earlier at the discretion of the Line Officer or if changing conditions warrant it.

**Figure 1. Walton Ranch, Willamette National Forest, Linn County, Oregon**



R. 4 E.

Figure 2. Cascadia Administrative Site, Willamette National Forest, Linn County, Oregon.



R. 2 E.

## BAT SPECIES NATURAL HISTORY (From Western Bat Working Group Species Account)

- *Corynorhinus townsendii* (Townsend's big-eared): The *C. townsendii* occurs throughout the west and is distributed from the southern portion of British Columbia south along the Pacific Coast to central Mexico and east into the Great Plains, with isolated populations occurring in the central and eastern United States. In western Oregon, distribution is patchy, and there are few known maternity colonies or hibernacula. Within its range, it has been reported in a wide variety of habitat types ranging from sea level to 3,300 meters. Habitat associations include: coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Distribution is strongly correlated with the availability of caves and cave-like roosting habitat, including abandoned mines. Population centers occur in areas dominated by exposed, cavity or caverniculous forming rock and/or historic mining districts. Its habit of roosting pendant-like on open surfaces makes it readily detectable, and it can be the species most readily observed, when present (commonly in low numbers) in caves and abandoned mines throughout its range. It also utilizes buildings, bridges, rock crevices and hollow trees as roost sites. Summer maternity colonies range in size from a few individuals to several hundred individuals. Maternity colonies form between March and June (based on local climactic factors), with a single pup born between May and July. Recent studies indicate that use of roost sites by *C. townsendii* is variable within seasons and among years, and multiple surveys may be required before use can be documented within an area. Although in some areas where roost availability is low there may be quite high roost fidelity (i.e. California Coastal regions). Males appear to remain solitary during the maternity period. Winter hibernating colonies are composed of mixed-sexed groups, which can range in size from a single individual to colonies of several hundred animals (or in some areas, particularly in the eastern U.S., several thousand). Mating generally takes place between October and February in both transitory migratory sites and hibernacula. *C. townsendii* is a moth specialist with over 90% of its diet composed of lepidopterans. Foraging associations include: edge habitats along streams, adjacent to and within a variety of wooded habitats. These bats often travel large distances while foraging, including movements of over 150 kilometers during a single evening (R. Sherwin pers. comm.). Evidence of large foraging distances and large home ranges has also been documented in California (E. D. Pierson pers. comm.). Seasonal movement patterns are not well understood, although there is some indication of local migration, perhaps along an altitudinal gradient. Dispersal from natal ranges appears to primarily be mediated by males, while females remain philopatric.

The daily and seasonal degree of movement of individuals and colonies of these bats are not settled and the dogma that these bats are sedentary, have high roost fidelity, and small home ranges may not be accurate. The identification of critical roosts and limiting factors in roost requirements is incomplete especially for hibernacula. Identification and protection of significant roost sites is still needed in most areas. Significant populations need to be monitored over time. More information is needed on foraging requirements, seasonal movement patterns, and population genetics.”

- *Myotis yumanensis* (Yuma myotis): The *M. yumanensis*, is a member of the Family Vespertilionidae, ranges across the western third of North America from British Columbia, Canada, to Baja California and southern Mexico. In the United States, it occurs in all the Pacific coastal states, as far east as western Montana in the north, and as far east as western Oklahoma in the south. *M. yumanensis* is a small bat that is usually gray or brown to pale tan dorsally with a paler venter of tan or gray; ears and membranes are frequently pale brown to gray. In some areas *M. yumanensis* is difficult to distinguish from *Myotis lucifugus* and caution is required. Both species are usually associated with permanent sources of water, typically rivers and streams, but

*Yuma myotis* also use tinajas in the arid West. It occurs in a variety of habitats including riparian, arid scrublands and deserts, and forests. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees. Individuals become active and forage just after sunset, feeding primarily on aquatic emergent insects. Their diet is known to include caddis flies, flies, midges, small moths and small beetles. After feeding, they periodically rest at night roosts where the food is digested. Mating is typically in the fall and females give birth to one young from mid-spring to mid-summer in maternity colonies that may range in size up to several thousand; males tend to roost singly in the summer.

- *Myotis lucifugus* (little brown bat): The *M. lucifugus* is among the most widespread and common bats in mesic, typically forested, areas of temperate North America. Overall distribution extends from near the treeline in Canada and Alaska to the southern tier of the United States. There is a distributional gap extending south from the largely treeless Great Plains through Texas. In the western U.S., this species is typically absent from hot, arid lowlands, but extends south (at increasing elevation) along forested mountain ranges into southern California, Nevada, Utah, and Colorado. *M. lucifugus* is a medium size *Myotis* which lacks a calcar and has moderate length pointed ears with a blunt tragus. Pelage color is highly variable, but fur is typically longer, darker, and glossier than similar co-occurring species. In the Northwest, external morphology and skull characters are insufficient to reliably assign a small percentage of individuals to *M. lucifugus* or the similar *M. yumanensis*, but intermediate individuals in southwest British Columbia were identifiable to species on biochemical characters. A few individuals in southern Colorado and northern New Mexico are intermediate in skull characters between *M. lucifugus* and *M. occultus* (which are sometimes synonymized). Body size (and time to maturity) increases with latitude. Among woodland/forest bats, *M. lucifugus* is an ecological generalist exploiting a wide variety of natural and man-made roost sites and a taxonomically wide spectrum of flying insect prey, including emerging adults of aquatic species. Summer maternity colony sites (consisting largely of reproductive females and dependent young) include tree cavities, caves and human-occupied structures. Fidelity to physically stable day and night roost sites is strong and individuals return for many years. Active season roosting by males and non-reproductive females is little studied, but male aggregations are known. Daily foraging movements are likely in the 1-10 km range, seasonal aggregation at mass hibernation sites may involve larger distances. Hibernation sites (typically caves and abandoned mines) and seasonality have been studied in eastern and mid-continent populations, but are poorly known in the west.

## BAT ACTIVITY

### *Walton Ranch*

Walton Ranch is an important area for bats and other wildlife on the Sweet Home Ranger District. Bat emergence/re-entry surveys began in 2011 and continued to 2013, presence-absence surveys started in 2016 and have continued to this day. Results of all Walton Ranch bat surveys are shown in Appendix A of this document.

One emergence/re-entry survey was conducted in 2011, surveys were done on a regular basis throughout the summers of 2012 and 2013 where numerous bats were documented going in and out of the barn and flying around the field. No surveys were conducted at the ranch during 2014 and 2015 due to the absence of a District Wildlife Biologist.

Presence-absence bat surveys began in 2016. A daytime survey conducted on July 27, 2016 found four bats roosting in the roof of the barn, between the rafters and metal roof panels (Figure 3). Due to the large size of the barn it is possible that several dozen, and potentially hundreds of bats may be roosting in the roof of the barn. Because of safety concerns and the height of the roost site, the number of bats using the barn and species identification remain unknown. Surveys have confirmed that seasonal bat roosting occurs from March through September.



Figure 3. Unknown bat species roosting at Walton Ranch in the barn.

In 2017, four bat boxes were installed on the barn (Figure 4). The bat boxes are situated on the north and south walls of the structure. The third box was placed on a tree at the south edge of the field. The fourth box was installed on a pole on the west side in the middle of the meadow, near old growth maple trees where it is exposed to full sun (Figure 6). Bat surveys are being conducted regularly at Walton Ranch. As of September 2019, two of the four boxes have been occupied by bats of unknown species (Appendix A). The box in the meadow was used by two and three bats in 2018 and 2019, respectively. One bat roosted in the box on the north side of the barn.



Figure 4. Installation of the bat boxes taken place at Walton Ranch.



Figure 5. Bat box installed on the south side of the barn.



Figure 6. Bat box located on west side of the meadow at Walton.

## *Cascadia Warehouse*

The Cascadia warehouse provides suitable bat habitat for at least three species of bats, *M. yumanensis*, *M. lucifugus* and the sensitive listed *C. townsendii*. Since DNA scat analysis has not been conducted, there exists the possibility that other bat species use this building for roosting as well. The warehouse has been continually surveyed since 2011. Survey results are shown in Appendix A of this document.

Hundreds of myotis bats, and potentially other bat species, use the attic of the Cascadia warehouse as a roost site. Myotis bats begin using the site as early as February, with peak numbers occurring in June and July (Appendix A). The surveys indicate the building supports a relative large (by western US standard) maternity colony of myotis. *C. townsendii* have been regularly documented roosting between January and November in the attic and bottom compartments of the warehouse (Appendix A). Counts of *C. townsendii* have been as high as 7 individuals. Surveys during the month of December have not been conducted in the last 5 years, so there exists a possibility that the building is used year round. Although the windows are boarded up with solid wood panels, the bats easily access the building through small crevices between the rafters and metal roof panels. The attic is easily accessible and monitoring bat species up close is manageable without disturbing individuals (by a qualified wildlife biologist with survey experience only). The proximity of the river provides excellent foraging opportunities in the area. This site management plan addresses the entire footprint of the administrative site.



Figure 7. A *C. townsendii* (Townsend's big-eared) roosting in one of the lower compartments of the Cascadia warehouse.



Figure 8. A cluster of myotis bats roosting in the Cascadia warehouse attic.

## **SITE DESCRIPTION - HISTORY AND CURRENT CONDITIONS OF WALTON RANCH AND CASCADIA ADMINISTRATION SITE**

### *Walton Ranch*

The Walton Ranch was first established as a homestead in 1872, prior to being acquired by the U.S. Forest Service in 1974 and continued to allow grazing by cattle until the mid-1990's. Sitting on approximately 25 acres of land, two homes were built, but have since been demolished (The Walton and Long Family homes). The current barn sitting on the property was built around 1955, and consists of a single large room (Figures 9 and 10). The structural integrity of the barn is severely compromised. The metal roof has missing panels, the floor has holes and the foundation is cracked. The rafters appear to be timeworn and pieces of the siding are missing. Walton Ranch is now managed as a wildlife area by the Forest Service. The ranch is primarily an anthropogenic meadow surrounded by forest, which is used not only by bats but also by a variety of birds, reptiles, small mammals and other wildlife. It also serves as low elevation winter habitat for deer and elk. In order to avoid tree encroachment and maintain year-round forage, the ranch is mowed annually. This site management plan addresses the entire footprint of the ranch. The barn currently provides roosting habitat to multiple bats of unknown species (Appendix A).



Figure 9. East and south side view of the barn located at Walton Ranch.



Figure 10. Walton Ranch barn, west and north side.

### *Cascadia Administration Site*

The warehouse at the Cascadia Site is located on the north side of Highway 20 along the South Santiam River and sits on about a two acre parcel. The 2,900 square foot structure was built in 1930 by the Civilian Conservation Corp. In 1997, due to its architecture, it was deemed significantly historic and registered with the State Historic Preservation Office. The warehouse served as a storage and maintenance facility until about 2008, when active use was discontinued. The warehouse is comprised of three bay entrances on the south side, with the middle bay door accessing the attic space. An additional bay entrance located on the north side of the structure, runs the full length of the building and is used as a storage compartment for historic materials (Figures 11 and 12). All the windows have been boarded up (Figure 13). Currently, infrequently utilized government equipment and old furniture is stored inside the building and rodent feces is scattered everywhere. Adjacent to the warehouse, a connex box is being used by district staff to store a lawn mower which is used to mow the entire site during the summer months. Several large pieces of unused and unwanted government equipment are scattered throughout the site (Figure 14). Overall, the building is in good condition however, the roof may need to be replaced in the next 10 years. The attic currently provides good roosting habitat for Townsend's big-eared bats year-round, during the summer months hundreds of *myotis* bats, including a maternity colony, use the building (Appendix A).



Figure 11. Three bay doors provide access to three different compartments on the south side of the building.



Figure 12. Entrance on the north side of the warehouse.



Figure 13. Picture above shows all windows boarded up around the building.



Figure 14. Unwanted material scattered on the two acre parcel.

## SITE THREATS

### General threats to bat species

*Corynorhinus townsendii* (Townsend's big-eared) *From Western Bat Working Group Species Account*)

- The primary threat to *C. townsendii* is almost certainly related to disturbance and/or destruction of roost sites (e.g., recreational caving or mine exploration, mine reclamation, and renewed mining in historic districts). Surveys conducted in Oregon and California indicate that current and historic roost sites have been negatively impacted by human visitation and renewed mining in recent years with most reported colonies exhibiting moderate to sizable reduction in numbers. Additional surveys in Utah indicate that several historic maternity sites have been abandoned, although it is not known if these colonies have relocated. This species is very sensitive to human disturbance events and may abandon roost sites after human visitation (Humphrey and Kunz 1976). In select sites in California and in other areas, depressed populations have recovered with the protection (i.e., gating) of roosts. In Colorado, gates have been shown to be successful at maintaining *C. townsendii* colonies at all types of roosts of, i.e., hibernacula, summer roosts, and maternity sites. All types of gates showed continued use by this species, suggesting that big-eared bats apparently have a high degree of tolerance for flying through restricted openings. This appeared to be especially true at fall transition roosts and hibernacula. Further, like most other North American species of bat, the long term persistence of *C. townsendii* is threatened by loss of both roosting and foraging habitat which may be impacted by timber harvest practices. Threats to populations of these bats may also include the loss of genetic diversity and population connectivity due to reduced population sizes or available roost sites. In fact, populations of the endangered *C. t. virginianus* in WV, VA and KY have been identified through a population genetic examination to lack genetic diversity, lack population connectivity, and to exhibit significantly high levels of inbreeding. Further, population genetic investigations of colonies of *C. t. townsendii* in Colorado have found a colony with high levels of inbreeding, which needs to be investigated further (Piaggio et al. in prep.). In general, the long term persistence of North American bat species is threatened by the loss of clean, open water; modification or destruction of roosting and foraging habitat; and, for hibernating species, disturbance or destruction of hibernacula. Chemicals in the environment that affect bats or their prey are also a threat. Because of low fecundity, high juvenile mortality, and long generational turnover, many bat populations may be vulnerable to human-induced pressures.

*Myotis yumanensis* (Yuma myotis) and *Myotis lucifugus* (little brown bat)

- The primary threats are common themes for forest bats — alterations in snag density (roost sites), timber harvest, habitat loss, pesticide use, climate change, and disturbance of maternity roosts in caves and buildings. These species often occupy structures and are vulnerable to human disturbance. Lack of knowledge of hibernation sites for the *M. lucifugus* (and the degree of population aggregation at these sites) is a key point of vulnerability for this species.

*Pseudogymnoascus destructans* (White-nose syndrome)

- White-nosed syndrome (WNS) is a serious threat to bats. WNS is a disease that is killing hibernating bats in eastern North America. It was first documented in eastern New York State in 2007, and has now spread throughout the eastern US and Canada. White-nose syndrome is

caused by a fungus, *Pseudogymnoascus destructans* (Pd), which thrives in cold and humid conditions like caves and mines used by bats. Since its discovery, WNS has killed over 6 million bats in eastern North America. White-nose syndrome affects cave hibernating bats throughout eastern North America and adjacent Canada. This fatal disease continues to cause mass mortality and precipitous population declines. Currently, white-nose syndrome affects at least seven species of hibernating insectivorous bats. Previously common species throughout the northeastern United States are presently at risk of regional extirpation or extinction due to white-nose syndrome. *P. destructans* affects bats by increasing the frequency and duration of arousals from the torpor of hibernation. The first discovery of the fungus and WNS in the western US was in March 2016, from a *M. lucifugus* found near North Bend, King County, Washington. Until then, the westernmost occurrence of Pd was in eastern Nebraska. Since the first discovery in the western US, there have been 34 documented cases of Pd and WNS in three different counties in the state of Washington. In the spring of 2019, Pd was detected in DNA samples collected from bats in Plumas County, California. WNS was confirmed for the first time east of the Cascade Range in Washington during September 2019. It was found on either four *M. yumanensis* or *M. lucifugus* (species are difficult to tell apart visually). As of October 2019 the fungus has spread to 33 states in the United States (US) and seven Canadian provinces. It is unknown to what degree this disease could affect bats in the Pacific Northwest in part because the region does not seem to have as large of wintering colonies of myotis as occur in the eastern United States. Currently Oregon Department of Fish and Wildlife is leading efforts to monitor hibernating colonies of bats for the presence of WNS in Oregon. Much of this effort is focused on winter hibernation colonies of *Myotis*.

## Site-specific threats to bat species

*Corynorhinus townsendii* (Townsend's big-eared), *Myotis yumanensis* (Yuma myotis) and *Myotis lucifugus* (little brown bat)

- **Cascadia Warehouse:** Disturbance from humans illegally trespassing at Cascadia is a threat to the bats including the large myotis maternity colony which roosts during the summer months at the Cascadia warehouse. The Cascadia administrative site is located along a main highway, adjacent to a small trailer park community, next to a popular covered bridge and immediately across from a designated picnic area with an interpretive trail. Human disturbance by members of the public has occurred on numerous occasions during the last decade. The warehouse houses excess items including miscellaneous tools and excess government furniture. On rare occasions Forest Service staff need to access the warehouse to retrieve those items which causes disturbance to the bats and puts the bats at risk of diseases because standard decontamination protocols are not followed. The Cascadia site is also currently used as a temporary storage site for excess and infrequently utilized equipment by Zone and District Forest Service staff. This also causes disturbance to the bats. Loss of habitat is a threat to all bats that roost at this site. Despite the fenced and locked compound, the building is susceptible to vandalism which may compromise its structural integrity. Locks on the building are constantly tampered with or removed. Complete destruction of the Cascadia warehouse due to fire (human-ignited) is a threat to the roost site due to its proximity where people live, travel

and recreate. The administrative site is vulnerable to deterioration due to natural elements and lack of maintenance. Although the warehouse is in good shape overall, it may need a new roof in the next 10 years. All of the aforementioned threats make the myotis maternity colony vulnerable to displacement. Public and Forest Service staff awareness of the significance and purpose to maintaining this site are critical and currently lacking.

- *Walton Ranch*: The structural integrity of the barn is severely compromised. As a result, loss of habitat is imminent. The metal roof has missing panels, the floor has holes and the foundation is cracked. The rafters appear to be timeworn and pieces of the siding are missing. The Ranch receives hundreds of visitors annually. Recreation activities at the ranch include hiking, hunting, and historic tours, all of which have the potential to disturb the roost site. There is a gate located on a mile-long road that leads to the ranch. The gate has been vandalized in the past on numerous occasions by recreationists and other members of the public. This is due to the easily accessible location of the gate and its fragile and breakable locking mechanism. This has provided members of the public access to drive up to the ranch increasing the barns susceptibility to vandalism and its threat to habitat loss, disturbance and further deterioration of the barn. The Walton ranch is surrounded by a wooded area and thus a forest fire is a threat to the bat roost site. All of the aforementioned threats make the bats vulnerable to displacement. Public and Forest Service awareness of the significance and purpose to maintaining this site is vital and currently lacking.
- *Pseudogymnoascus destructans (White-nose syndrome)*: WNS is a potential site-specific threat to both administrative sites. There is an opportunity to coordinate with Oregon Department of Fish and Wildlife Service and incorporate monitoring for WNS at these sites.

## **BAT MANAGEMENT DIRECTION**

A memorandum dated September 21, 2012 issued by the Regional Forester provides information and direction regarding buildings occupied by bats in the Northwest Forest Plan Area. It specifically addresses the assessment and management of buildings as bat habitat in relation to the Northwest Forest Plan (NWFP) Bat Standards and Guidelines (S&G's) and the Forest Service's (FS) Sensitive Species policy (FSM 2670).

The memorandum states that the NWFP S&Gs, as amended in 2001, outlines specific management direction for bats. The intent of the S&Gs is to maintain bat species throughout the NWFP area through management and protection of abandoned structures and facilities used by bats. The S&Gs speak specifically to the need to conduct surveys for bat species or assume bat occupancy whenever management actions could impact abandoned facilities or structures. Individual species identification is not required in order to determine bat occupancy. According to the NWFP, abandoned buildings determined or assumed to be used by bats should be retained (subject to safety and legal requirements) and a management plan for the facility developed. This site management plan completes this requirement for the Walton Ranch and Cascadia sites. Abandoned buildings used by bats should be protected from destruction, vandalism or other activities that could change microclimatic conditions that are essential to maintaining roosting habitat for bats.

Abandoned buildings are those buildings that are not maintained or inventoried by the Forest Service. They are typically buildings located on Forest Service lands that do not serve a mission. The Forest Service Handbook (FSH) 7309.11 42.04 (7), states: “Do not abandon Government-owned buildings on Government-owned land. Any building not needed must be removed or destroyed (FPMR 101-47.5).” This Handbook requirement does not preclude designating a building or a portion of a building as bat habitat and Line Officers can choose to leave an abandoned building on FS land until it no longer provides bat habitat.

In addition to NWFP S&Gs, bat management must also be consistent with the FS Sensitive Species policy. While NWFP S&Gs focus on the management of abandoned buildings for all bats, the Sensitive Species policy should be used in the biological evaluation process to determine effects to sensitive bats present or assumed to be within abandoned, storage, livestock-occupied or human-occupied buildings. Individual species identification may be needed in order to manage a building under the FS Sensitive Species policy. Building maintenance activities and conveyance of buildings occupied or used by people and used by bats will need to be evaluated on a case-by-case basis by a biologist, building management specialist and a conveyance specialist to determine the potential for impacts to bats while meeting all human health and safety requirements. Ultimately, the decision about how to proceed rests with the Line Officer.

## **PROPOSED SITE MANAGEMENT ACTIONS**

The following is a list of proposed actions that are needed in order to address the site-specific threats identified above and to improve current site conditions for bats. The proposed management of the facilities address needs for bats and public safety consistent with Forest Plan direction.

### *Walton Ranch*

- **Bat House:** Due to the dilapidated conditions of the current barn, a large bat habitat structure (Bat House) is proposed to be built in order to provide adequate habitat for bats when the barn eventually collapses or, at the discretion of the Line Officer, is demolished for public safety. This is the preferred option since safely maintaining/restoring the barn structure is not cost-effective due to its deteriorated condition. The District Wildlife Biologist and/or the Forest Wildlife Biologist shall determine the best Bat House design needed at the site and its location. Appendix B shows some potential designs. The Bat House should have the capacity to house several hundred, if not thousands, of bats. There are currently four bat boxes at the Walton Ranch. Two bat boxes exhibited occupancy as of September 2019. The desired condition at the Walton Ranch site is a productive year-round, vandal-resistant structure for multiple species of bats. Bat structures are highly successful in providing new habitat for bats and for relocation of bats. Installation of a large habitat structure with a fence around it would be somewhat experimental, since this approach has never been taken on the Sweet Home Ranger District, if successful, it would provide a low-maintenance, weather-resistant habitat for the bats. It will also provide an opportunity for easy monitoring, research and species identification. If the bats choose not to immediately relocate to the alternate structure, the structure will still provide an alternate habitat option until the current barn collapses or needs to be demolished for public safety.

- Access: Installation of a new gate is being proposed on the road which leads directly to the Ranch. The new gate would be installed (location TBD) in order to protect bats from trespassers and disturbance and for public safety. The gate would have a Tab Multi-lock mechanism in order to avoid removal or breakage of Forest Service locks.
- Vegetation Management: The field will continue to be mowed annually and invasive plants will be controlled as long as funding is available. Native vegetation will be favored, especially when it has the potential to attract insect species that could serve as prey for local bats. Seeding may be done to promote native vegetation on sites where it would be effective.
- Placement: Details on where to place the bat house will be determined prior to material purchase, but in general will be in a location that receives a good amount of sun and is not near or adjacent to forest stands surrounding the ranch. Placement away from the forest should result in a reduced threat of wildlife potentially destroying the bat house. The meadow in which the bat house will be placed is also mowed annually, further reducing the potential for the bat house to be lost by fire. Should vegetation grow up in proximity to the structure, annual vegetation management will reduce the fire risk.

#### *Cascadia Administrative Site*

- Storage Removal: This plan proposes to remove all items including tools, chemicals, excess government furniture and trash from inside the warehouse to ensure the continued persistence of the Townsend's big-eared bat and for Forest Service staff safety. Space at the Sweet Home District Office is limited. If conditions change (i.e. loss of land lease), at the discretion of the Line Officer, storage of connex boxes at the Cascadia Site may be considered in the future. The connex box which stores the lawn mower may remain on the site if space is unavailable at the Sweet Home District Office.
- New Storage Structure: To mitigate impacts to District staff who currently store items in the warehouse, a new storage structure may be purchased if necessary. The storage structure (i.e. shed, container, etc...) will be located at the Sweet Home District Office, at the Cascadia Site or any other location with prior approval by the District Line Officer. This will provide a safer environment for Forest Service staff (e.g. bat and rodent free site for storage). The District may look for potential funding sources to help pay for the new storage shed including exploring conservation funding since the new shed will allow the existing Cascadia building to be used exclusively as bat habitat.
- Machinery Equipment: Large, unused, rusted, heavy equipment at the Cascadia site (currently located outside the building) will be excessed or moved to the southeast corner of the site, furthest from the building in order to meet District staff needs. The heavy equipment is potentially historic and may be donated to a museum in the very near future. It is also possible that the equipment will remain at the site. This decision will be left up to the Line Officer as its fate is not part of this plan.
- Cleaning: All trash and unwanted equipment/items located inside and outside the building will be removed, surplused, or stored off-site.
- Warehouse Structure: The existing storage structure will be retained and managed as bat habitat (consistent with regional policy) for the near-term. The Cascadia site will have a restricted entry in order to minimize disturbance to the bats and lessen the risk of disease such as white-

nose-syndrome. New anti-cutting locks and locking mechanisms will be installed to secure the structure from vandalism. Reducing vandalism will also reduce the potential risk of fire at the site, and therefore reduce the risk of loss of the roost site. Monitoring for structural soundness will take place annually to maintain the warehouse in good condition for bat habitat as long as possible. Currently, the warehouse is in good condition however, a new roof may be needed in 10 years. If a new roof becomes necessary, it should be replaced with historically appropriate materials or synthetic ones which mimic the original roofing materials. Monitoring of the roof will be part of the annual assessment for potential improvements in coordination with the District Archeologist. If due to changing conditions, District Line Officer's discretion, or if the building eventually becomes too expensive to maintain and the archaeology department or the historic society can no longer provide supplemental funding for maintenance, a new bat house will be installed at the site or nearby (to be determined by the Forest and District Wildlife Biologist with approval from the District Line Officer) to continue to provide bat habitat. The new bat house must be installed prior to proposed changes or complete deterioration of the building so as to provide ample time for the bats to move in.

- Signage: Drawing visitors to the site will not be encouraged but informing Forest Service staff and members of the public of the new management restrictions of the site will be facilitated through signage. Specifically, the signage will inform and educate members of the public and Forest Service staff that the Cascadia site is a 'protected sensitive species bat habitat area' and that it is now managed as such, that dumping or storage is no longer allowed, and that 'entry is restricted' inside the warehouse and not allowed unless prior permission is given by the District Wildlife Biologist or District Line Officer.

## **ADAPTIVE MANAGEMENT APPROACH**

This plan is dynamic and is intended to be used with an Adaptive Resource Management (ARM) framework. This Bat Management Plan is consistent with the 2012 policy direction. Following are ARM actions that shall take place during implementation of this Plan:

- The District Wildlife Biologist and/or the Forest Wildlife Biologist will review any new actions or modifications of the Plan prior to implementation to ensure continued compliance with all policy direction.
- When plans for the Walton Ranch Bat structure are finalized, a monitoring schedule will also be developed to conduct periodic surveys at the new Bat Structure to determine if bat use is occurring or increasing and if structure enhancements or modifications are necessary. A particular emphasis of the surveys should be to determine if the sensitive listed species, Townsend's big-eared bats, is using the new structure.
- Annually assess Cascadia warehouse condition for structural soundness in order to determine the long-term viability of the structure as bat habitat and if additional habitat improvements could be implemented. Coordinate with ODFW and determine the feasibility of including these two sites in the statewide WNS monitoring program. Any monitoring of bats at either site will specifically look for evidence of WNS. Currently the focus for WNS monitoring in Oregon has been wintering myotis. Groups of myotis have been documented at Cascadia warehouse in

April in some years which provides an opportunity to look for evidence of WNS during the spring arrival. The bat boxes and future bat structure at Walton Ranch may provide an opportunity to monitor for WNS from guano or swabbing of walls and wintering bats. Monitoring efforts at the new Bat House and the Cascadia warehouse will be conducted specifically to look for evidence of WNS. Surveys will be conducted during the late spring arrival of myotis to the Cascadia site.

- Assess public safety of Walton Ranch annually to determine if demolition is necessary for public safety
- All proposed changes to this Plan will be reviewed to ensure consistency with regional policy.

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## APPENDIX A

Results of Walton Ranch emergence/re-entry bat surveys from 2011 to 2013. Most surveys were conducted at dusk.

Date	Observer(s)	Bat Count	Weather (F°)/RH	Comments
9/9/2011	T. Young, C. Miller, B. Williams, C. Gray, L. Farque, C. Marks-Fife	30 small, 28 large	68/73%	Night survey - majority of bats exiting from south side of barn.
5/26/2012	T. Young	4 large, 7 small	48/72%	Night survey
6/28/2012	T. Young	0	62/56%	Rafters too high up to see anything. Nothing observed. Day check
6/30/2012	T. Young	6 large, 13 small	51/78%	Night survey
7/9/2012	T. Young, C. Miller, B. Williams	0	72/54%	Day check- no bats observed
7/21/2012	T. Young	7 large, 12 small	62/79%	Night survey
8/30/2012	T. Young, C. Miller, L. Farque, F. Marks, B. Williams	4 large, 35 small		Night survey
9/8/2012	T. Young	4 large, 9 small		Night survey
5/11/2013	T. Young	3 small	48/73%	Night survey
6/7/2013	T. Young	1 large, 2 small	51/67%	Night survey
7/18/2013	T. Young, L. Farque, C. Miller, B. Williams	4 large, 2 small	62/80%	Night survey
8/17/2013	T. Young	3 large, 17 small	64/67%	Night survey
9/21/2013	T. Young	7 large, 19 small	54/78%	Night survey

Results of presence/absence surveys conducted at Walton Ranch from 2016 to present.

Date	Observer(s)	Bat Species	Bat Count	WNS Symptoms?	Temperature	Comments
3/30/2016	A. Smith, E. Janasov, E. Bracamonte	-	-	Unknown	65°	Day survey - 11 am. No guano
7/27/2016	E. Bracamonte and D. Bollen	Unknown	4	Unknown	88°	Installed acoustic monitoring device inside building (will be left there for 7 days) to determine bat use and species identification. Bats found underneath aluminum roof panels. Could not survey entire roof due to safety concerns (old building/roof is unstable).
7/17/2017	E. Bracamonte and A. Perry	Unknown	4	Unknown	90°	Bats found between roof panels and rafters.
4/9/2018	E. Bracamonte and J. Doer	-	-	Unknown	72°	None found.
5/23/2018	A. Perry and B. Williams	Unknown	2	Unknown	70°	2 bats in roof panels.
6/27/2018	M. Martin and B. Williams	Unknown	8	Unknown	72°	8 bats in roof panels.
8/14/2018	E. Bracamonte, M. Martin, B. Williams	Unknown	2	Unknown	86°	1 bat in box at meadow. 1 bat in roof panels
10/3/2018	E. Bracamonte and D. Chastain	Unknown	2	Unknown	67°	2 bats in box in meadow.
4/23/2019	E. Bracamonte and A. Keller	Unknown	4	Unknown	57°	1 bat at electricity plant inside bat box. 1 bat in roof panels. 2 bats in box in meadow.
5/21/2019	E. Bracamonte	Unknown	3	Unknown	48°	2 bat in box at electricity plant. 1 bat in box in meadow.
9/19/2019	A. Keller and J. Hoyt	Unknown	4	Unknown	65°	1 bat in box on the north side of the barn. 3 bats in the box in the meadow. Most likely little brown myotis.

Results of Cascadia Warehouse bat surveys since 2011.

Year	Date	Observer(s)	Bat Species	Bat Count	Sex	WNS Symptoms?	Temperature	RH
2011	20-Sep	T.Young/C.Marks-Fife/C.Lawrence	Unknown	16	-	-	-	-
2012	18-Jan	T.Young	N/O	0	-	-	28°F	38%
2012	23-Feb	T.Young	N/O	0	-	-	31°F	40%
2012	7-Mar	T.Young/C.Marks-Fife	N/O	0	-	-	34°F	41%
2012	11-Apr	T.Young	COTO Myotis	2 30+	Female	NO	42°F	59%
2012	9-May	T.Young	COTO Myotis	2 30+	Female	NO	62°F	52%
2012	28-Jun	T.Young	COTO Myotis	2 50+	Female	NO	68°F	51%
2012	18-Jul	T.Young	COTO Myotis	2 50+	Female	NO	76°F	38%
2012	29-Aug	T.Young	COTO Myotis	2 50+	Female	NO	73°F	39%
2012	17-Sep	T.Young	COTO	2	Female	NO	64°F	42%
2012	31-Oct	T.Young	COTO	2	Female	NO	62°F	53%
2012	13-Nov	T.Young	N/O	0	-	-	51°F	62%
2012	21-Dec	T.Young	N/O	0	-	-	39°F	47%
2013	17-Jan	T.Young	N/O	0	-	-	27°F	68%
2013	23-Feb	T.Young	N/O	0	-	-	33°F	71%
2013	15-Mar	T.Young	N/O	0	-	-	40°F	63%
2013	9-Apr	T.Young	COTO Myotis	3 30+	Female	NO	48°F	64%
2013	15-May	T.Young	Myotis	30+	-	NO	62°F	47%
2013	7-Jun	T.Young	Myotis	50+	-	NO	67°F	49%
2013	23-Jul	T.Young	Myotis	50+	-	NO	73°F	38%
2013	16-Aug	T.Young	COTO Myotis	2 25	Female	NO	81°F	44%
2013	27-Sep	T.Young/C.Marks-Fife	COTO	3	Female	NO	76°F	46%
2013	25-Oct	T.Young	COTO	3	Female	NO	52°F	72%
2013	6-Nov	T.Young/A.Colton	N/O	0	-	NO	51°F	72%
2013	6-Dec	T.Young/C.Lawrence	N/O	0	-	NO	42°F	68%
2014	9-Jan	T.Young/J.Statezny	N/O	0	-	NO	41°F	52%
2014	28-Feb	C.Marks-Fife	N/O	0	-	NO	59°F	44%
2014	11-Mar	T.Young	N/O	0	-	NO	62°F	43%
2014	8-Apr	T.young/B.Williams	COTO	4	Female	NO	67°F	41%
2014	11-May	T.Young	Myotis	1	-	NO	71°F	42%
2014	24-Jun	T.Young/J.Statezny	COTO Myotis	3 ~ 36	-	NO	64°F	53%
2014	18-Jul	T.Young/J.Statezny	COTO Myotis	7 100+	Female	NO	100°F	64%
2014	18-Aug	T.young	COTO	1	Female	NO	69°F	61%
2014	26-Sep	T.Young/A.Colton	COTO	2	Female	NO	69°F	64%
2014	30-Oct	T.Young/B.Williams/C.Miller	COTO	1	Female	NO	56°F	69%
2014	25-Nov	T.Young	N/O	-	-	-	49°F	64%
2014	22-Dec	T.Young	N/O	-	-	-	36°F	51%

2015	22-Feb	T.Young	N/O	-	-	-	57°F	41%
2015	22-Apr	T.Young/S.Weber	N/O	-	-	-	62°F	42%
2016	29-Jan	E.Bracamonte/T.Young	N/O	-	-	-	49°F	77%
2016	25-Feb	E.Bracamonte/E.Janasov	COTO Myotis Unknown	2 1 1	-	NO	64°F	60%
2016	30-Mar	E.Bracamonte/E.Janasov/A.Smith	Myotis	1	-	NO	72°	49%
2016	29-Apr	E. Bracamonte/C.Murphy	COTO	1	-	NO	62°	85%
2016	18-May	E. Bracamonte/E. Janasov/S. Riutzel	Unknown	60+	-	NO	66°	91%
2016	26-May	E. Bracamonte/ E. Janasov	COTO Myotis	7 15+	-	NO	61°	55%
2016	30-Jun	E. Bracamonte	COTO Myotis	5 100+	-	-	86°	48%
2016	27-Jul	E. Bracamonte/D. Bollen	COTO Myotis	5 150+	-	-	88°	51%
2016	20-Oct	E. Bracamonte/ N. Swanson	Coto	3	-	-	57°	78%
2017	17-Jan	E.Bracamonte/L.Nieves	COTO Myotis	1 1 Dead	-	NO	35°	72%
2017	11-Apr	E. Bracamonte	COTO	1	-	NO	-	-
2017	18-May	E. Bracamonte/C. Sorensen	Myotis	1	-	NO	72°	44%
2017	10-Jul	E. Bracamonte/C. Sorensen	COTO Myotis Unknown	1 200+ 12+	-	-	93°	56%
2018	9-Apr	E. Bracamonte/J.Doerr	COTO	2	-	NO	-	-
2018	2-Jul	E. Bracamonte/B. Williams	COTO Myotis	6 200+	-	NO	72°	43%
2018	3-Oct	E.Bracamonte/D. Chastain	COTO	3	-	-	64°	48%
2019	23-Apr	E. Bracamonte/ A. Kelly	COTO	6	-	NO	73°	53%

## APPENDIX B

Below are several potential designs for a Bat House at the Walton Ranch.

The Florida style Bat House and Bat Barn are shown below. These are the world's largest artificial bat house with 300,000 resident bats.



Sample design of a Bat Condo with multiple compartments inside to produce microclimates for the bats. It is the most popular bat house design due to its effectiveness.



Below is the Berkeley Bat House design. Bats moved in after two weeks.

