ARROYO TOAD
(*Anaxyrus californicus)*
FOCUSED SURVEY REPORT
FOR THE SAN DIEGO GAS & ELECTRIC
CLEVELAND NATIONAL FOREST
MASTER SERVICES PERMIT PROJECT
SAN DIEGO COUNTY, CALIFORNIA

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February 2011

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SECTION 1.0 – INTRODUCTION

1.1. PROJECT DESCRIPTION

The Cleveland National Forest (CNF) is requesting an Environmental Impact Statement (EIS) be prepared for the issuance of a Master Special Use Permit to the San Diego Gas & Electric Company (SDG&E). The Master Special Use Permit would cover the operations and maintenance of the existing electric distribution and transmission lines, appropriate access roads, and facilities within the Trabuco, Palomar, and Descanso Ranger Districts of the CNF. The existing facilities are needed to supply power to local communities, residents, and government-owned facilities located within and adjacent to the CNF The CNF is also analyzing operational and equipment upgrades and improvements to the existing lines. The Master Special Use Permit would also include conditions necessary for resource protection. Chambers Group, Inc (Chambers Group) has conducted biological surveys including focused sensitive wildlife species surveys and focused surveys for rare plants along the distribution and transmission line Rights of Way (ROW) within the CNF (Project Area[1]). The survey results will be submitted by SDG&E to the CNF in support of the EIS to help analyze potential impacts to sensitive species within the Project Area. The Project Area includes approximately 167 linear miles of 12 transmission and distribution lines and includes the associated access roads and work areas. In addition to the data gathered from the Chambers Group surveys, the United States Forest Service (USFS) Biological Assessment/Biological Evaluation (BA/BE) for the CNF will be used to support this effort and report analysis.

The objective of this study was to determine the presence or absence of the Arroyo Toad (*Anaxyrus californicus;* ARTO) and suitable ARTO habitat within the proposed Project Area.

1.2. SURVEY AREA

Chambers Group conducted focused ARTO surveys within the Project Area. Chamber Group biologists conducted a helicopter survey of the Project Area to determine where species specific surveys should be conducted (see Section 2.1 for Habitat Assessment). Areas identified as ARTO "suitable" habitat within CNF models were included in the review.

The Survey Area is a 150-foot buffer around transmission/distribution pole centerlines and was extended to a 250-foot radius around each pole where the overhead line makes an angle greater than 2 degrees. The additional buffer is to include potential additional work space that is typically required during operation and maintenance work at angle points within the overhead lines.

Survey Areas are identified first by geographical locations within the county and are also referenced by the associated transmission/distribution line. These areas are then further refined to individual drainages that are surveyed and are graphically depicted on an accompanying aerial mapbook. One master mapbook was created for the entire Project Area; however, due to its size only the relevant mapbook pages are included in this report.

1.3. ARTO NATURAL HISTORY

The ARTO is a small (4.6 to 8.6 cm), uniformly warty and stocky toad with a light-colored "v"-shaped stripe across the head between the eyelids (Stebbins 2003, Jennings and Hayes 1994). As seen from

[1] A complete Mapbook and description of the entire Project Area can be submitted upon request.

above, it is usually colored greenish gray, olive, or dull brown, generally with a light area on each sacral hump and in the middle of its back (Stebbins 2003). Undersurfaces are creamy to dirty white but never splotched, molted, or spotted with dark markings (Jennings and Hayes 1994). ARTO are found within riparian habitats in sandy and braided washes, riverbanks and arroyos with sandy substrates, slow moving pools of water, and areas of open vegetation. Ideal locations have a moderately well-developed but scattered shrub and tree overstory with an understory that is barren or has scattered dead leaves or grasses and rodent burrows (Sweet 1991). Gravels and cobbles are acceptable substrates, but fine sand is essential for burrowing and overwintering at these terrace locations (Sweet 1991). ARTO are nocturnally active from the first substantial rains (January to February) to mid-summer (early August) and move by hopping instead of walking or taking large leaps.

The breeding season for ARTO runs from April through July depending on local elevation and climate (USFWS 2010). Males precede females to the breeding pools and display high site fidelity, generally positioning themselves in an open, exposed location along the pool (Sweet 1991). Males will stop calling when disturbed or when air temperatures fall below 55 degrees Fahrenheit. Female ARTO lay approximately 2,000 to 10,000 small (1.5 millimeter average diameter) dark pigmented eggs, generally in two long (3.7 to 10 m) strands in the shallows of the males' calling pools (Sweet 1991). The lengths of the egg strands very greatly due to predators or breakage from the movement of stream substrates or other natural events (Chambers Group, personal observations).

Immediately after hatching, ARTO larvae are difficult to distinguish from western toads (*Bufo boreas*) because both are small and darkly pigmented. But changes in shape, coloration, and size are apparent after several weeks, making ARTO larvae more easily distinguished (Hollingsworth, Gray-Lovich, and Lovich 2010). ARTO tadpoles become tan and cryptically colored and fusiform in shape as they develop (Jennings and Hayes 1994). They distribute themselves evenly in the pools they inhabit and are unable to recognize predatory fish, making them vulnerable to non-native fishes and invertebrates (Jennings and Hayes 1994). ARTO larvae require shallow, slow moving streams that are regularly flooded. ARTO larvae feeding methods are extremely specialized compared to other anurans; they feed by sifting the sandy substrate for algae, bacteria, protozoans, and fungi (Jennings and Hayes 1994). Metamorphosis occurs after 65 to 85 days, after which newly metamorphosed toads will remain in more saturated areas of the sand bars before moving up to drier areas after about one week (Jennings and Hayes 1994). Upon metamorphosis toadlets, or juveniles, are identical to adult ARTO in shape and coloration but without yellow spots commonly found on adults.

ARTO were found historically in southern California in coastal mountains and valleys from Hunter Liggett Military Reservation, Monterey to San Quintín-San Simón area of Baja California (Stebbins 2003). Desert populations have been reported from along lower Whitewater River in Riverside County and Mojave River in San Bernardino County (Stebbins 2003). Direct habitat loss in conjunction with hydrological alterations and the introduction of non-native species has caused the ARTO to disappear from about 75 percent of previously occupied habitat (Jennings & Hayes 1994). The extreme habitat specialization of ARTO places significant restraints on where ARTO can occur. This constraint has resulted in most populations being found now as small isolated populations (USFWS 2009).

SECTION 2.0 – METHODOLOGY

2.1. HABITAT ASSESSMENT

The purpose of the ARTO habitat assessment was to determine the presence and substrate quality of drainages, washes, creeks, and rivers with potential for ARTO breeding on the Project site.

Chamber Group biologists conducted a helicopter survey of the Project Area to determine where species specific surveys should be conducted. ARTO habitat suitability was assessed during this helicopter flyover. All drainages, washes, creeks, and rivers, both permanent and temporary that intersect the Project ROWs were reviewed for the presence of suitable sandy substrates, stream edges not completely choked by vegetation, and the presence of braided channels and sand bars necessary for breeding. Handheld Global Positioning System (GPS) units and aerial maps were used to outline portions of the Project Area that would be surveyed during the 2010 ARTO focused surveys. In addition to areas identified by Chambers' biologists, modeled data supplied by the CNF was also reviewed. Areas identified as ARTO "suitable" habitat within CNF models were included in the focused surveys. However, protocol-level surveys were not conducted in areas identified as "occupied" by USFWS and CNF.

Most drainages within the Project Area are ephemeral or intermittent, steep and narrow drainages with a lack of riparian vegetation, a lack of suitable sandy substrates for burrowing (many are cobble or boulder-strewn), a lack of sand bars for breeding sites, and a lack of sandy, braided channels for egg-laying. The several areas selected for ARTO surveys all contain, as visible from the air and during the first series of ground surveys, sandy substrates, sandy and braided channels, sand bars, and riparian/wetland vegetation that is not dense enough to preclude access to toads from the surrounding uplands. Areas that were boulder-strewn, lacked sand bars or sandy, braided channels for breeding and egg-laying sites, or were unsafe to access were mapped and excluded from focused surveys.

Two control sites, at Cottonwood Creek and Sweetwater River, were designated to be included in the focused surveys by the *United States Fish Wildlife Service (USWFS) Protocol Augment Request for AT (USFWS 2010).* The control sites with known populations were selected to ensure overall ARTO activity (breeding, vocalization, foraging behaviors) was suitable throughout the survey efforts for detecting presence/absence above 3,000 ft in elevation (USFWS 2010). Maps of the Control Area locations are provided in Appendix A. Maps of the Survey Area locations are provided in Appendix B. GPS locations for the control sites are available in Appendix C. Section 2.2 describes methods used to conduct focused surveys.

2.2. FOCUSED SURVEYS

The ARTO focused surveys were conducted according to the protocol set forth by *USFWS Arroyo Toad Survey Protocol (USFWS, 1999)* and a *USFWS Protocol Augment Request for AT (USFWS 2010)*. In addition, USFWS reference material concerning reference sites, recommended survey areas, critical habitat designations, and conservation plans (USFWS 2002-2010) was reviewed before performing the surveys. Each segment was surveyed at least six times, with at least seven days between each survey, within the breeding season starting from April 30 to July 2. Daytime and nighttime surveys were conducted within a 24-hour period.

Daytime surveys included an assessment and mapping of ARTO habitat suitability and whether eggs, larvae or juveniles were present within the survey area. Nighttime surveys were conducted when the temperature at dusk was 55 degrees Fahrenheit or greater. Headlights and flashlights were used in

attempts to visually locate adult ARTO and toadlets, with the surveyor pausing periodically for approximately 15 minutes to listen for vocalizations. Nighttime surveys were not conducted during the full moon or near-full moon or during adverse weather conditions. Caution was used when surveying to avoid crushing any adult ARTO that might be buried in sandbars at the survey site. Stream crossings were avoided whenever possible; but if required to enter the water, surveyors were careful not to disturb or create silt deposits in potential breeding pools. Surveys were conducted in areas suitable for ARTO breeding (sandy substrates, stream edges not completely choked by vegetation, and the presence of braided channels and sand bars). The surveys were conducted in segment areas that intersected the 250-foot radius and/or 150-foot buffer around all poles and transmission/ distribution centerlines. Surveys were also conducted in suitable breeding areas that were immediately adjacent to the survey area, such as in situations where the drainages continue immediately outside the survey area, or areas where the drainages exist directly parallel to the survey areas. In some locations, surveys were conducted up to 1000 feet upstream and downstream of the survey segment area. Photographs were taken of the survey segments, and all amphibians species observed or heard vocalizing were recorded.

SECTION 3.0 – RESULTS

No ARTO adults, larvae, or eggs were observed within the Survey Areas; however, ARTO were confirmed at the Lake Henshaw and Mile 6.5 Bridge on Buckman Springs Road control sites.

ARTO may not have been found during the focused surveys at some of the survey sites because thick vegetation was present up to the banks, making these areas only marginally suitable ARTO habitat. Photos depicting this type of survey area can be seen in Attachment B. One focused survey segment became desiccated during the survey timeframe and had to be eliminated from the survey. This site can be seen in Attachment C.

The general riparian habitat in both the Lake Henshaw and Mile 6.5 Bridge control sites was composed of wide, braided channels with sandy bottoms, ample surrounding sand bars, and scarce riparian vegetation at the banks. Photos depicting suitable ARTO habitat can be seen in Attachment A.

3.1. CONTROL SITES

The original control sites, at Cottonwood Creek and Sweetwater River, were relocated due to the negative results of the initial surveys. The control site located along the Sweetwater River where the river intersected Japatul Valley Road is an area marked as "occupied" by the data provided by CNF and USFWS. The Sweetwater River control site lacked significant braiding and had one dominant channel with carp present, making this unsuitable ARTO habitat. No ARTO were observed during the time of the survey. Therefore, the control site was relocated along the West Fork San Luis Rey River inlet of Lake Henshaw, an area also marked as "occupied" (partially). This relocated control site crosses Transmission Line (TL) 685 crossing along a 0.7-mile section of the West Fork San Luis Rey River inlet to Lake Henshaw, and known hereafter as the Lake Henshaw control site (Appendix G). This area was confirmed as having ARTO present and was used in all subsequent surveys. The control site along Cottonwood Creek was originally located where it intersected two bridges at Interstate 8 and Old Highway 80, an area marked as "occupied" by data provided by CNF and USFWS. This area was surveyed; and due to the negative finding at this location, the control site was relocated further downstream to where Cottonwood Creek intersects with Buckman Springs Road. This location area was also identified as "occupied". The relocated control station is referenced hereafter as Mile 6.5 Bridge on Buckman Springs Road, confirmed as having ARTO present, and was surveyed in all subsequent surveys. GPS locations of control sites are provided in Table 1 and in Appendix C.

ARTO were observed at both the Mile 6.5 Bridge on Buckman Springs Road and the Lake Henshaw control sites. The Mile 6.5 Bridge on Buckman Springs Road Control Site Survey Area consisted of the listed GPS point with a 300-foot buffer in all directions. ARTO were observed in different abundances at this location during the survey season that extended to June 16, 2010. ARTO adults were observed mating at the Mile 6.5 Bridge on Buckman Springs Road Control Site on May 4, 2010. During the subsequent surveys, adult ARTO were observed and heard vocalizing; and eggs and larvae were observed throughout the survey season. Interestingly, ARTO were heard vocalizing at this location with temperatures recorded as low as 41 degrees Fahrenheit. This data demonstrates that males can and do continue calling at lower temperatures than the 55 degree Fahrenheit survey protocol parameters.

The Lake Henshaw Control Site was distributed over a 0.7-mile reach of the West Fork San Luis Rey River extended from N33.282447 W-116.741068 to N33.271173 W-116.743695. The midpoint location of this area is N33.276316 W-116.742526 and is listed in Table 1. ARTO were documented vocalizing throughout the Survey Area in the shallow margins of the drainage for the duration of the survey

season. No eggs or larvae were documented during any of the focused surveys at this location. A data table of focused survey locations (referenced as corresponding Mapbook pages) and results is provided in Appendix D. The GPS locations and dates for observed ARTO are listed in Table 1. Appendix E lists all the amphibian and reptile species observed within the Survey Area during the focused surveys. Appendix F lists all species observed within the Survey Area during ARTO surveys. Focused survey results and locations (GPS points) for control sites are also provided in Appendix C.

Table 1: GPS Locations of ARTO Observed

Observation Number	Date of Observation	General Location	GPS Location (NAD 83, LAT/LONG)	
			Latitude	Longitude
1 - 6	5/04/2010 – 6/16/2010	Mile 6.5 Bridge Area	N 32.71568	W -116.49954
1 - 4	5/10/2010 – 6/02/2010	Lake Henshaw Area	N 33.27631	W -116.74252

3.2. SURVEY SITE LOCATIONS

3.2.1 Lake Henshaw Area

Surveys were conducted within the San Luis Rey River and adjacent to Lake Henshaw along the TL 682, downstream of Henshaw Dam. The Survey Area for TL 682 runs along State Route (SR) 76 and the San Luis Rey River and works its way around the northern end of Lake Henshaw. The Lake Henshaw Control Site is located upstream approximately 0.5 to 1.2 mile from the TL 685 Survey Areas (Maps MS-006, -007, -008, and -012). The Survey Area along the east drainage inlet into Lake Henshaw (Map MS-012) was characterized by grasslands and slow moving water with sandy substrates. Surveys were discontinued in this area on June 20 2010 due to the area eventually drying out. The remainder of the Lake Henshaw Survey Areas were characterized by southern coast live oak riparian forest and riparian scrub surrounded by chamise chaparral, grassland understory, and residential areas. The dense oak canopy along much of this area prevents light penetration. The habitat was considered marginal ARTO habitat with sand and gravel substrates, fast moving water with few side pools, and benching. Areas of sand and gravel terraces that could provide burrowing opportunities for ARTO are discontinuously present and are densely vegetated. However, USFWS designated Critical Habitat for ARTO exists within the San Luis Rey River basin located downstream and upstream of the survey locations. ARTO could utilize these proximal resources for foraging, hydration, and/or aestivation. In addition, individuals of all life stages could be relocated during migration upstream from the USFWS critical habitat areas or downstream from the Lake Henshaw control area during high flow events. Therefore, surveys were continued within this section of the drainage. A large number of California chorus frogs (*Pseudacris cadaverina*) and Pacific chorus frogs (*Pseudacris regilla*) were commonly heard during nighttime surveys. No ARTO adults, larvae, or clutches were documented during the formal surveys.

3.2.2 Ramona to Santa Ysabel Area

The Survey Areas along TL 637 were located south of SR 78 from the Ramona area to Santa Ysabel. Surveys were conducted at locations where TL 637 crosses unnamed creeks in Swartz Canyon and Dye Canyon as depicted on Maps MS-015, -017, -019, and -021. Much of the terrain is composed of steep walled valleys and canyons running in a southwesterly direction. The western most Survey Area (Map

MS-015) was composed primarily of southern coast live oak riparian forest and riparian scrub surrounded by chamise chaparral. The stream was approximately 200-feet from the closest distribution pole. Water flow was intermittent and appeared to be a first or second order stream with large boulders, cobble, with minimal sand/gravel with a mud and silt substrate. The drainage was deeply incised, usually less than three feet, with steep banks, steep gradient, no terracing, and a minimal floodplain. Dense riparian vegetation advanced up to the edge of stream flow. The upland habitat was comprised of non-friable soils unsuitable for burrowing. Therefore, this area was not considered suitable ARTO breeding habitat, and surveys in this area were discontinued.

The Survey Area depicted on Map MS-017 was flat, grazed grassland pasture. No streams or creeks were present; the closest water in the immediate area was a 2-acre pond approximately 1-mile north of the closest distribution pole. Therefore, this site was not considered suitable ARTO breeding or upland habitat, as no streams are present. Surveys were discontinued in this area. The Survey Area depicted on Map MS-019 had a deeply incised, narrow drainage with a steep gradient drop, surrounded by chamise chaparral. The drainage contained no water except where a small spring flows intermittently into a stock pond towards the southwest of the Survey Area. Therefore, this site was not considered suitable ARTO breeding or upland habitat, as no streams are present. Surveys were discontinued in this area. The Survey Area depicted on Map MS-021 includes an adjacent 2-acre pond, presumably for livestock or agriculture. The pond is partially fed from a drainage swale, which flows into a narrow creek that is choked with emergent vegetation. Non-native annual grassland vegetation advances up to the water's edge. No sand, gravel, or cobble substrate is present; and terracing and sandbars also are absent. Several bullfrogs (*Lithobates catesbeianus*) were calling from the pond, and one adult California toad (*Anaxyrus boreas halophilus*) was found within the ROW near a power pole. Upland habitat is Engelmann oak woodland with associated grazed grassland. Hence, the site is unsuitable as ARTO breeding habitat. No ARTO habitat is present at this site; therefore surveys were discontinued in this area.

3.2.3 Boulder Creek Road Area

Surveys were conducted along several drainages and tributaries located within Cedar Creek, Kelly Creek, Johnson Creek, Conejos Creek, and West Fork King Creek, many intersecting with Boulder Creek Road (Maps MS-026 through MS-030 and MS-034 through MS-036). Many of the small drainage features ranging from 1-foot wide to 3-feet wide along TL 626 had dramatic gradients, steeply incised narrow channels with substrates of rock and boulder, no terracing, and minimal floodplain and/or were dry during the survey. Several of the small drainages did host trickling water; however, the stream banks were composed of dense vegetation up to the stream course and did not exhibit sandy substrates. The larger drainages included Cedar Creek, Kelly Creek, and tributaries to Conejos Creek and the West Fork King Creek. These drainages were steep gradient streams composed rock and boulders with very little sand composition and sedimentation. The streams were primarily composed of riffle and run systems containing cascading pools coursing over rocks and boulders, typical of habitat suitable for the California chorus frog. These drainage features were surrounded by post fire recovering southern coast live oak riparian forest, southern mixed chaparral, and non-native grasslands. Surveys were conducted upstream and downstream of these areas up to a quarter mile to identify areas where the streams may become level and host floodplains with sandier substrate composition. Although small sand banks were scattered outside the Survey Areas, these areas were typically choked out by dense vegetation that would not allow for ARTO dispersal. The areas with dense vegetation were typical of habitat suitable for the Pacific chorus frog. The areas along TL 626 were not considered suitable for ARTO breeding sites; therefore surveys were discontinued in these areas.

3.2.4 Horsethief Canyon Area

The Survey Areas were located along Japatul Valley Road from Interstate-8 south to the intersection with Lyon's Valley Road (Maps MS-041, -042, -043, -045, and -046). Surveys were conducted within unnamed drainages in Horsethief Canyon along TL 625. The Survey Area as depicted on Map MS-041 and -042 was located in an unnamed tributary to Carl Springs. This location included a narrow, slow moving creek within a southern oak woodland riparian forest along Japatul Valley Road. The Survey Area was located on private property and exhibited heavy disturbance from modifications to the land, grazing, and debris within the creek. The low gradient stream course exhibited slow moving water flowing over sand and loam substrates with large cobble to boulders and no gravel composition in the immediate vicinity. No side pools were present but may be possible under higher flow conditions. This area was mostly dense oak canopy with emergent vegetation. This area was considered minimally suitable for ARTO breeding sites; therefore, surveys were continued at this area for the remainder of the survey season. No ARTO were observed at this location during the survey effort.

The small unnamed drainage areas depicted on Map MS-043 were heavily altered by the residential community located along Japatul Valley Road from approximately Larry Lane south to Red Hawk Ridge, and minimal stream characteristics were evident (bank formations, ordinary high water marks, no flowing water). One area outside the ROW to the east of Japatul Road at the intersection of Japatul Lane had stagnant water and dense riparian scrub vegetation including willows and poison oak along the banks. These areas were not considered suitable for ARTO breeding sites. The Survey Areas depicted on Map MS-045 and -046 were dense southern mixed chaparral within a steep gradient drainage composed of bedrock and cascading pools with no floodplain characteristics. These areas were not considered suitable for ARTO; therefore surveys at the areas (Maps MS-043, -045, and -046) were discontinued.

3.2.5 Loveland Reservoir Area

Surveys were conducted within several small unnamed drainages immediately west of the Sweetwater River and Taylor Creek inlet into Loveland Reservoir along TL 625. The Sweetwater River inlets have historically hosted ARTO (personal communication with Pete Famolaro at Sweetwater Authority) and are identified as "occupied" habitat. After a couple visits at this location, no ARTO were observed or heard. The habitat within the unnamed drainage features immediately to the west of the Sweetwater River inlet (Map MS-047 and -048) was southern coast live oak riparian forest and chamise chaparral habitat. The dense coast live oak overstory did not appear to allow much light penetration. The drainage feature is deeply incised with mostly a high aspect. The intermittent stream was composed primarily of rocky substrate and silty deposits with no side pools and lacked a sandy component. The flow was intermittent and mostly dry within the Survey Area. The areas of the stream that exhibited water were primarily bedrock pools with poor water quality (anaerobic conditions). The stream habitat was typical of Pacific and California chorus frog habitats. No ARTO were observed during the two site visits. Based on the lack of suitable breeding habitat, surveys at this location were not continued.

3.2.6 Barrett Lake Area

Surveys were conducted within Wilson Creek along TL 625 and Barrett Lake Road. The Survey Area along Barrett Road just east of Lyon's Valley Road (Map MS-051) was southern coast live oak riparian forest and non-native grassy fields with scattered stands of poison oak. The dense oak canopy prevents light penetration. The habitat was considered marginal ARTO habitat with sand and gravel substrates and slow moving water with few side pools and benching. ARTO food ants were present onsite. Several Pacific and California chorus frogs were identified. The stream was a slow moving and shallow system,

but exhibits evidence of large discharges and sediment loads from storm conditions, including 12-foot high undercut banks. Although marginal ARTO habitat was present, no ARTO were identified during the survey efforts. A western pond turtle (*Actinemys marmorata pallida*) was observed in a tributary to the east.

Surveys were conducted along the inlet into Barrett Lake in the Pine Valley Area as depicted on Maps MS-052 and portions of MS-053. Survey locations were located within a series of five tributaries to the Cottonwood Creek basin area, just north of Barrett Lake. Drainages were surveyed from west to east along Skye Valley Road. Although five drainage features exist in this area, two small unnamed drainages at the eastern end of the Survey Area were located on private property and were not visited during this assessment due to non-compliance from the land owner. Only drainage three drainage features to the west of the property were surveyed. The first Survey Area (Map MS-052) was located immediately downstream of the Camp Barrett Juvenile Detention Facility. This area was southern coast live oak riparian forest with sparse tamarisk (*Tamarix ramosissima*) as well as mulefat and annual grassland in the understory. The streambed was composed of sandy substrates, gravel, and rock with braided sections and side pools at the upstream end of the drainage. Stable, sparsely vegetated terraces that provide burrowing opportunities for ARTO were occasionally present. Therefore, this area provides suitable breeding habitat for ARTO. No ARTO adults, larvae, or clutches were documented during the formal surveys.

The second Survey Area was located along the southern end of Pine Valley Creek in the northeastern reach of the Barrett Lake inlet and is located within USFWS designated Critical Habitat within Cottonwood Creek Basin and "occupied" habitat. Cottonwood Creek extends across Barrett Lake and does not maintain a typical riparian corridor throughout its extent. This area along the drainage on the east side of Map MS-052 was characterized as a lacustrine community (lake) with red willow (*Salix laevigata*) and tamarisk along the lake edge and an annual grassland understory. Stable terraces that would provide burrowing opportunities for ARTO are occasionally present along narrow fringes of the lake, but they are densely vegetated with non-native grasses and forbs. Due to the lacustrine nature of this site, this Survey Area within this portion of the Pine Valley Creek does not provide suitable breeding habitat for the ARTO. Therefore this area was not used as a control site for surveys in the area.

The third Survey Area was an unnamed tributary located within the CNF as depicted on the west side of Map MS-053. This area was southern coast live oak riparian forest with sparse tamarisk and annual grassland and sage scrub in the understory. A dammed reservoir is located approximately 0.2 mile upstream from this drainage on private property and regulates flows to this site. The drainage was characterized by a pool and riffle complex due to the presence of exposed rocks and boulders. Stable terraces that would provide burrowing opportunities for ARTO are discontinuously present and are densely vegetated. A large number of California chorus frog larvae were present, and adult vocalizations were commonly heard during nighttime surveys. Although the majority of this drainage does not represent suitable breeding habitat and some impediments to movement exist in and around the drainage, suitable breeding habitat is present upstream and downstream of this location outside of the Survey Area. ARTO could utilize these proximal resources for foraging, hydration, and/or aestivation. In addition, individuals of all life stages could be relocated downstream during high flow events. Therefore, surveys were continued within this drainage and the immediately surrounding areas upstream and downstream of the survey buffer. No ARTO adults, larvae, or clutches were documented during the formal surveys.

3.2.7 Descanso Area

Surveys were conducted within portions of the Samagatuma Creek along Old Highway 80 just east of SR 79 in the Descanso area (Map MS-091). The creek follows along the north side of Old Highway 80. Much of the northern extent of the roadside is fenced (barbed wire, chain link, and metal rail) and concrete k-rails are occasional, making access to the riparian corridor difficult throughout. Regardless, several access points to the riparian corridor were available via private driveways. This Survey Area is characterized by a southern coast live oak riparian forest with a grassland understory and residential areas throughout. The Survey Areas were not considered suitable breeding habitat for the ARTO. Throughout the drainage, the stream corridor is dense with coarse, woody debris, emergent plants, algae, and other in-stream vegetation. This vegetation and deadwood has resulted in alternating riffle and pool complexes where water depth typically exceeds 4 inches. Much of the length of the drainage is also characterized by the presence of stagnant or near-stagnant pools. In addition, exposed, sandy stream banks and stable terraces that would provide burrowing opportunities are not present. No ARTO adults, larvae, or clutches were documented or are expected to occur within this Survey Area.

3.2.8 Potrero Area

Surveys were conducted north of Potrero and SR 94 (Map MS-057), approximately 2 miles south of Barrett Lake. The Survey Area lies along an unnamed tributary located to the east and parallel to Cottonwood Creek. This unnamed tributary eventually converges with Cottonwood Creek downstream of the Survey Area approximately 1 river mile. This portion of Cottonwood Creek is located within USFWS designated Critical Habitat for ARTO within Cottonwood Creek Basin. This area was not used as a control site for surveys due to resistance by the private land owner along Barrett Lake Road.

The Survey Area within the unnamed tributary to Cottonwood Creek (as depicted in Map MS-057) was characterized as southern coast live oak riparian forest and riparian scrub with grassland and coastal sage scrub understory that had recently been burned, providing an open canopy along much of the drainage. The drainage was primarily characterized by a steep pool and riffle complex due to the presence of exposed rocks and boulders. Narrow areas of sand and gravel terraces that could provide burrowing opportunities for ARTO are discontinuously present and are densely vegetated. Although the majority of this drainage does not represent suitable breeding habitat and some impediments to movement exist in and around the drainage, suitable breeding habitat is present upstream and downstream of this location approximately 1,500 feet outside of the Survey Area in areas of the drainage which appear to lose the steep gradient. ARTO could utilize these proximal resources for foraging, hydration, and/or aestivation. In addition, individuals of all life stages could be found in this area due to migration upstream from the USFWS Critical Habitat areas along Cottonwood Creek or downstream during high flow events. Therefore, surveys were continued within this drainage and the immediately surrounding areas upstream and downstream of the survey buffer. A large number of California chorus frogs were commonly heard during nighttime surveys. No ARTO adults, larvae, or clutches were documented during the formal surveys.

A dirt access road to the Survey Area crosses a few small, steep gradient unnamed drainages. These areas were southern coast live oak riparian forest and riparian scrub with a dense understory of grassland and sage scrub habitats. No sandy terraces were observed along these narrow, steep gradients, providing no support for ARTO breeding habitats. Pacific chorus frogs were commonly heard in the smaller drainage systems along the dirt access road to the site. No ARTO adults, larvae, or clutches were documented during the formal surveys.

SECTION 4.0 – CONCLUSION

ARTO focused surveys were conducted within the Trabuco, Palomar, and Descanso Ranger Districts in the Cleveland National Forest within areas where drainage features crossed distribution and transmission line ROWs. Many areas were considered unsuitable breeding habitat for ARTO due to variable conditions including no available surface water, or narrow, deeply incised, steep gradient drainages with large boulders, cobble, and minimal sand/gravel and no terracing or floodplain areas. In many areas, dense riparian vegetation advanced up to the edge of stream flow and would not allow for appropriate ARTO dispersal, and/or upland habitat was comprised of non-friable soils unsuitable for burrowing. Although suitable habitat exists within Survey Areas southwest of Lake Henshaw, north of Barrett Lake, and within the Potrero and Horsethief Canyon areas, no ARTO adults, larvae, or clutches were documented during the formal surveys. Only the control sites at Lake Henshaw and Mile 6.5 Bridge on Buckman Springs Road had confirmed ARTO presence throughout the survey efforts.

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CHAMBERS GROUP

ATTACHMENT A – SUITABLE ARTO HABITAT SITES

ATTACHMENT A – SUITABLE ARTO BREEDING HABITAT SITE PHOTOGRAPHS

	Photo 1. The Lake Henshaw control site, depicting ideal ARTO habitat. Note the significantly braided channels, sandy substrate, and sparse riparian vegetation along stream banks. ARTO presence in all stages of life was confirmed at this location.
	Photo 2. Photo taken looking north (upstream) from the Mile 6.5 Bridge along Buckman Springs Road at the Control Site. This photo depicts ARTO breeding habitat with sandy subtrates, braided channels, and sparsely vegetated banks.
	Photo 3. Photo of an ARTO larvae taken at the Mile 6.5 Bridge on Buckman Springs Road Control Site. Note the cryptic coloring of the ARTO compared to gravel surroundings. Eggs were also observed at this location.

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ATTACHMENT B – MARGINAL ARTO HABITAT SITES

ATTACHMENT B – MARGINAL ARTO BREEDING HABITAT SITE PHOTOGRAPHS

	Photo 1. Photo taken looking upstream at MS 057 survey site near Potrero. Sandy substrate and slow moving shallow water are present intermittently downstream and upstream of the Survey Area segment. The majority of this area is a single channel and thick riparian vegetation growing on sand bars, for marginal breeding habitat. Surveys continued in this area.
	Photo 2. Photo taken at MS 041, 042 Survey Area in Horsethief Canyon. The sandy substrate, shallow moving water and sandy terraces provide potential habitat. However, the dense vegetation on the sand bars, lack of braided channels and surrounding residences and disturbed areas make this marginal breeding habitat. Surveys continued in this area.
	Photo 3. Photo taken facing west at MS 010 along the west bank of Lake Henshaw Survey Area. Intermittent areas of shallow riffled water along with sparsely vegetated banks provide potential ARTO breeding habitat; however, much of the area hosted larger gravel substrate and surrounding vegetative debris making this only marginal habitat. Surveys continued in this area.

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ATTACHMENT C – UNSUITABLE ARTO HABITAT SITES

ATTACHMENT C – UNSUITABLE ARTO BREEDING HABITAT SITE PHOTOGRAPHS

	Photo 1. Photo taken at MS 026 and 027 at the Boulder Creek Survey Areas. Deeply incised, narrow and steep stream beds of mostly boulders, dense riparian vegetation and lack of sandy substrate makes this unsuitable ARTO breeding habitat and resulted in elimination from the assessment surveys. Areas along MS 028 – 030 and 034 – 036 were very similar.
	Photo 2. Photo taken at MS 012 along the E. Lake Henshaw survey site. Braided channels, sandy substrate and sparse riparian vegetation made this suitable breeding habitat. No ARTO were observed during the surveys. On 6/2/2010, it was observed to be dry and eliminated from the survey areas, making it unsuitable ARTO breeding habitat.
	Photo 3. Photo taken at MS 091 survey site. Stagnant water, dense riparian vegetation and lack of sandy substrate or sand bars make this unsuitable ARTO breeding habitat and resulted in elimination from the assessment surveys.

APPENDIX A – CONTROL SITE LOCATION MAPS

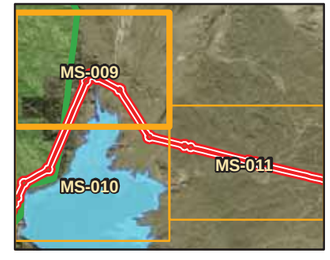
Arroyo Toad Control Sites

LEGEND

- Survey Area
- Control Site
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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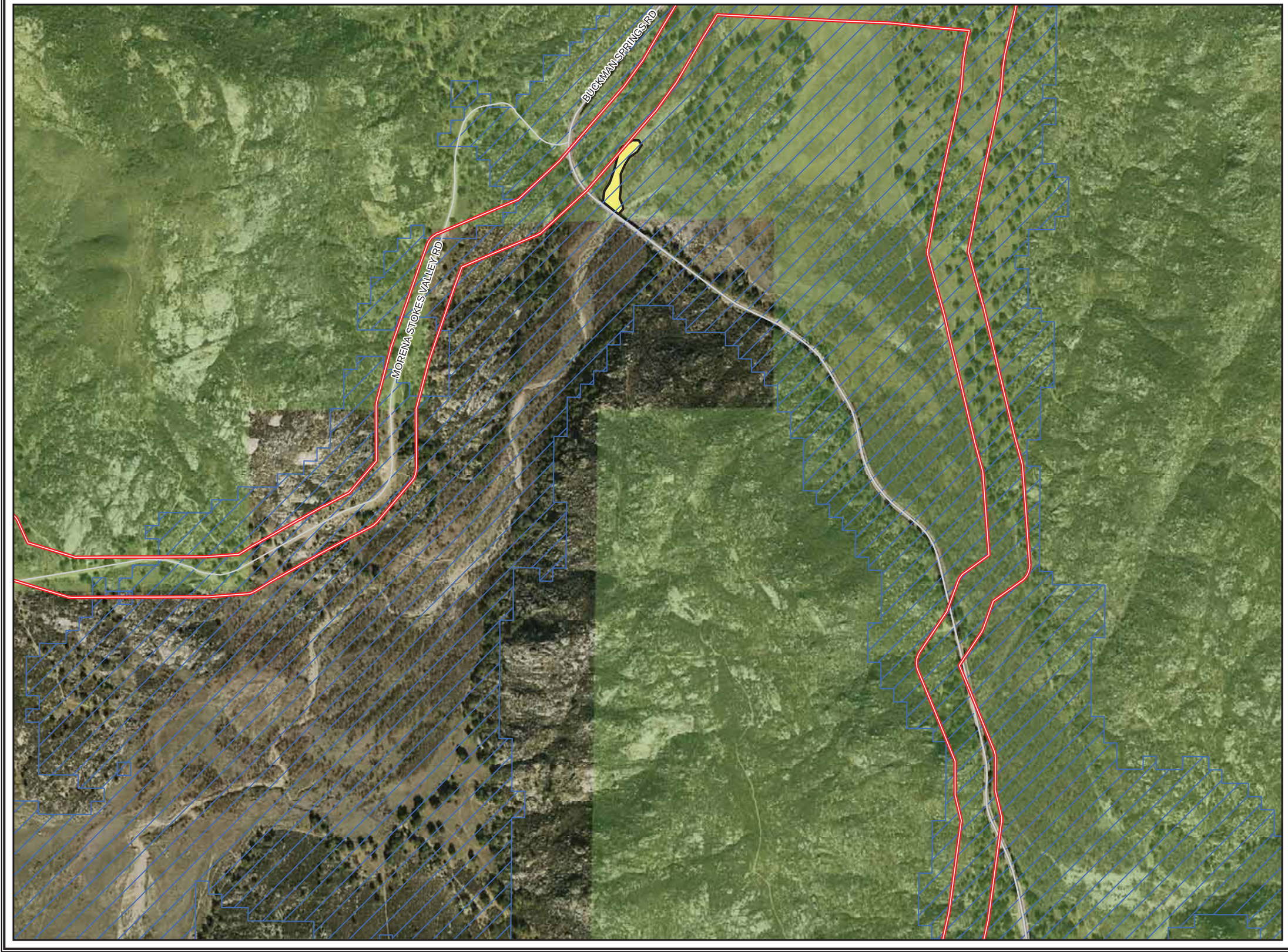


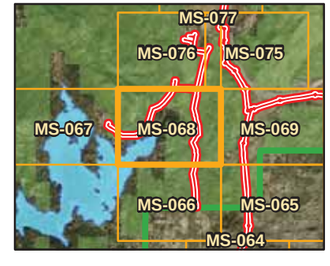
Arroyo Toad Control Sites

LEGEND

- Survey Area
- Control Site
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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MS-068

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APPENDIX B – SURVEY LOCATION MAPS

Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet

PAGE:
MS-006

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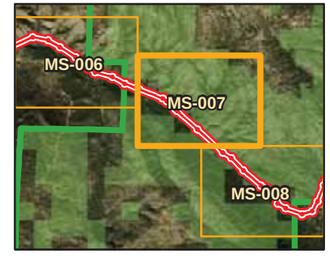
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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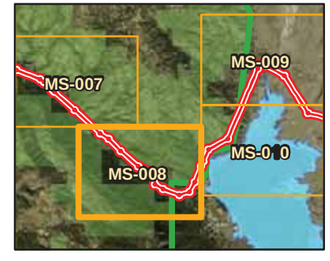
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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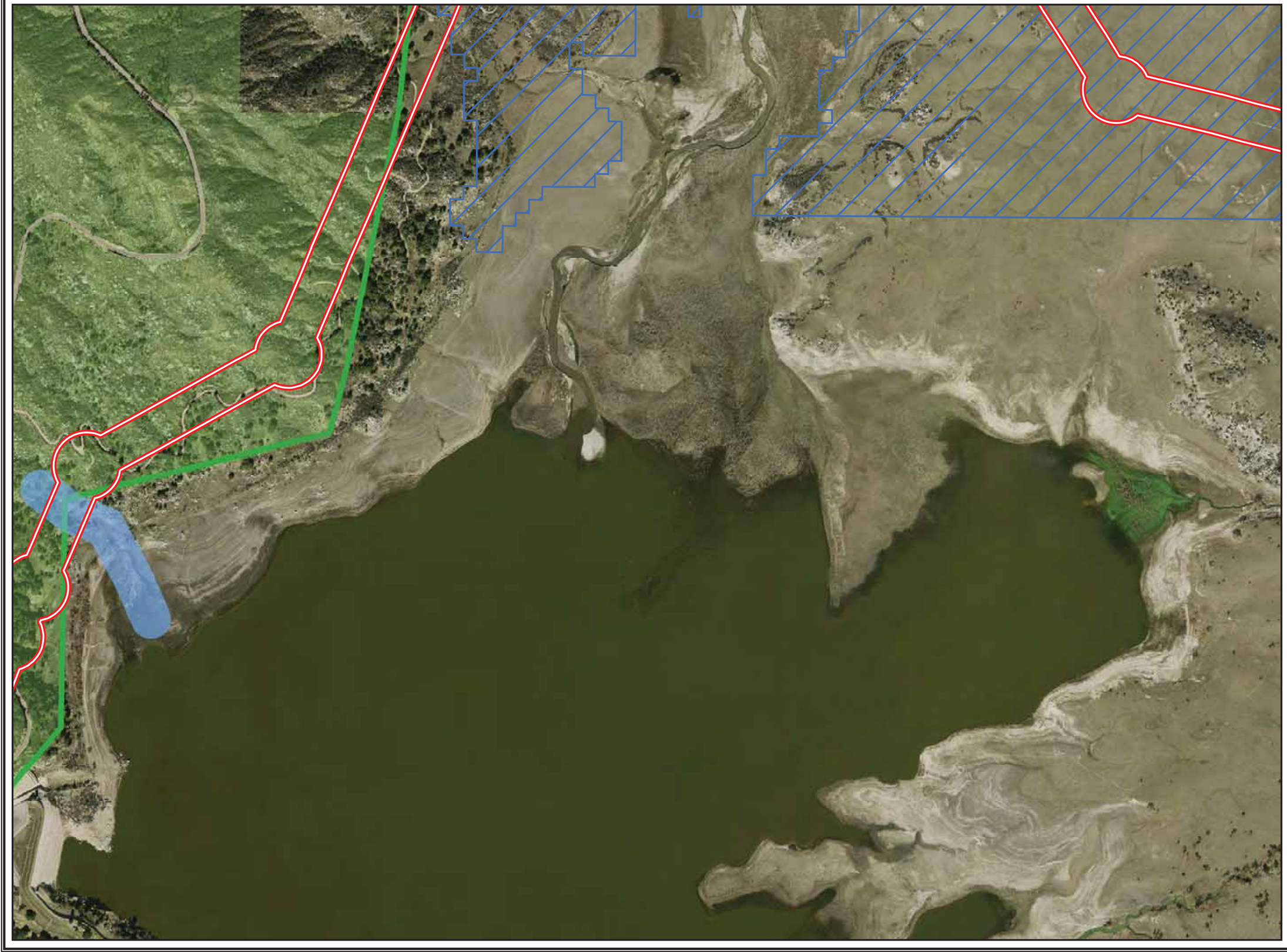


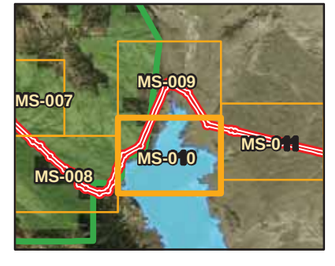
Arroyo Toad S r ey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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MS-010

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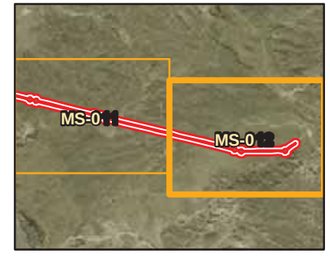
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-012

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Arroyo Toad Survey Sites

STARLIGHT MOUNTAIN RD

SWEET LN

LITTLE PAGE RD

OAK HOLLOW RD

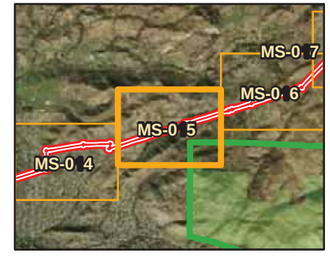
RANCH RD

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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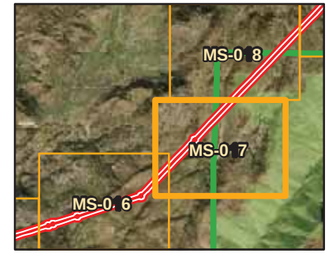
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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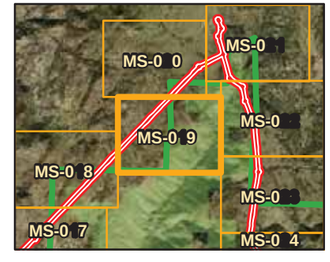
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-01

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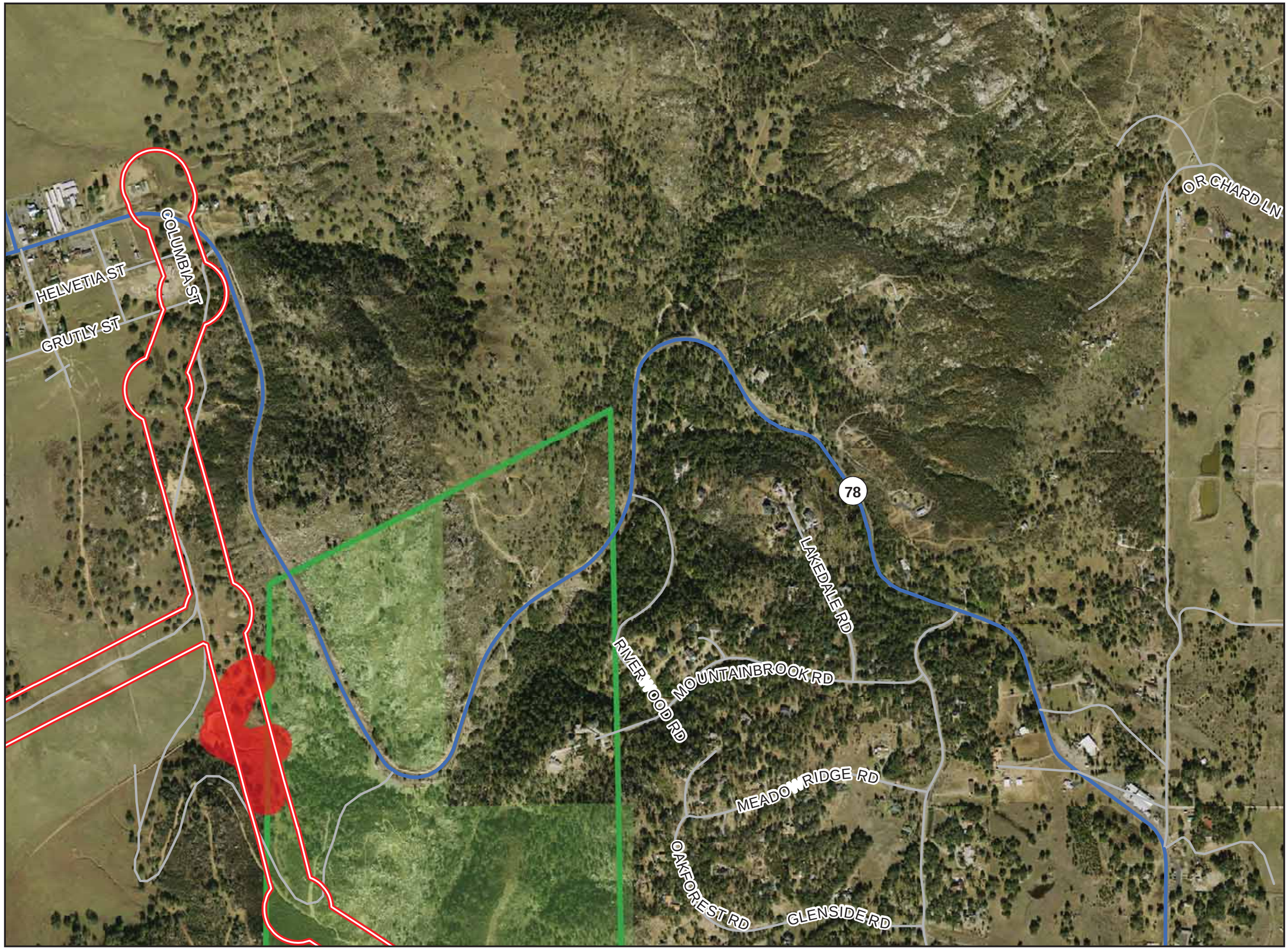
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands



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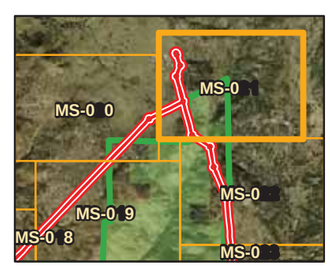

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MS-021

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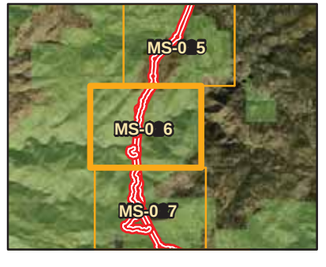
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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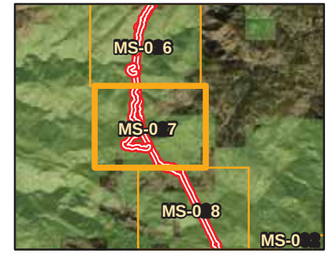
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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MS-02

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FOR ROUTE 1 S11

BOULDER CREEK RD

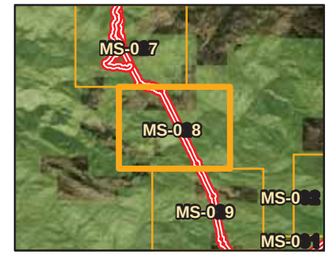
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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MS-028

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BOULDER CREEK RD
GROVE DR
GROVE DR

Arroyo Toad Survey Sites

GROVE DR

FOR ROUTE 14S01

BOULDER CREEK RD

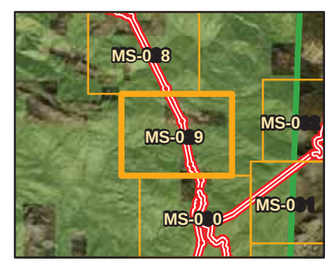
GROVE DR

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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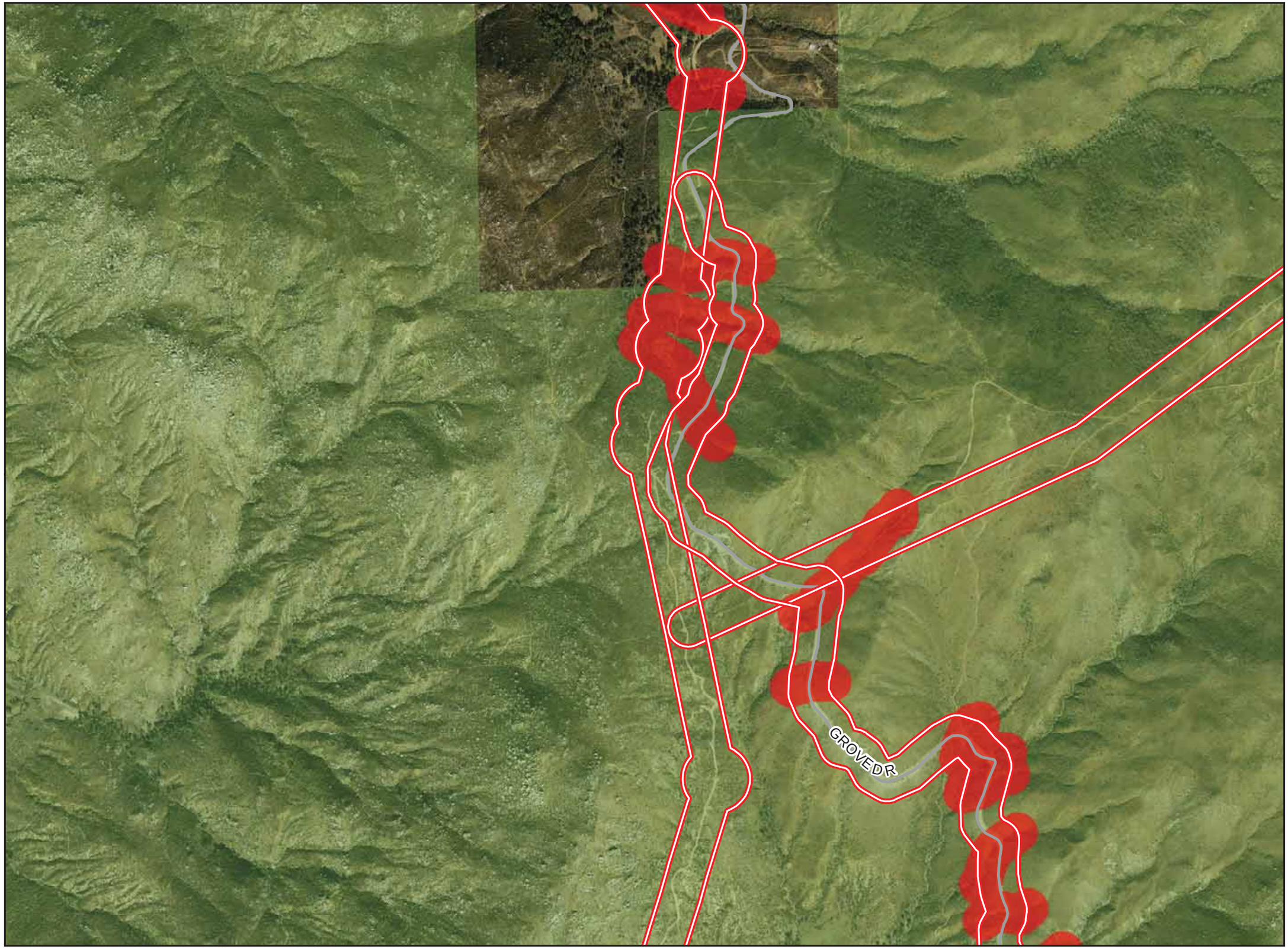


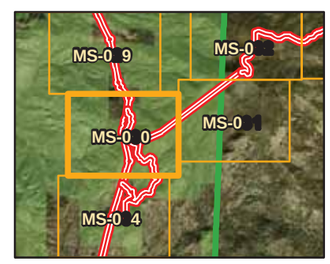
Arroyo Toad S r ey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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MS-0 0

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Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

FOR ROUTE 14S0

BOULDER CREEK RD

GROVE DR

FOXTAIL WAY

SHERILTON VALLEY RD

YUCCA RD

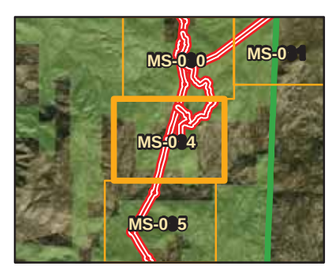
GOLDFIELDS RD

SHERILTON VALLEY RD

FOR ROUTE 1 S2

0 420 840 1,260

Feet



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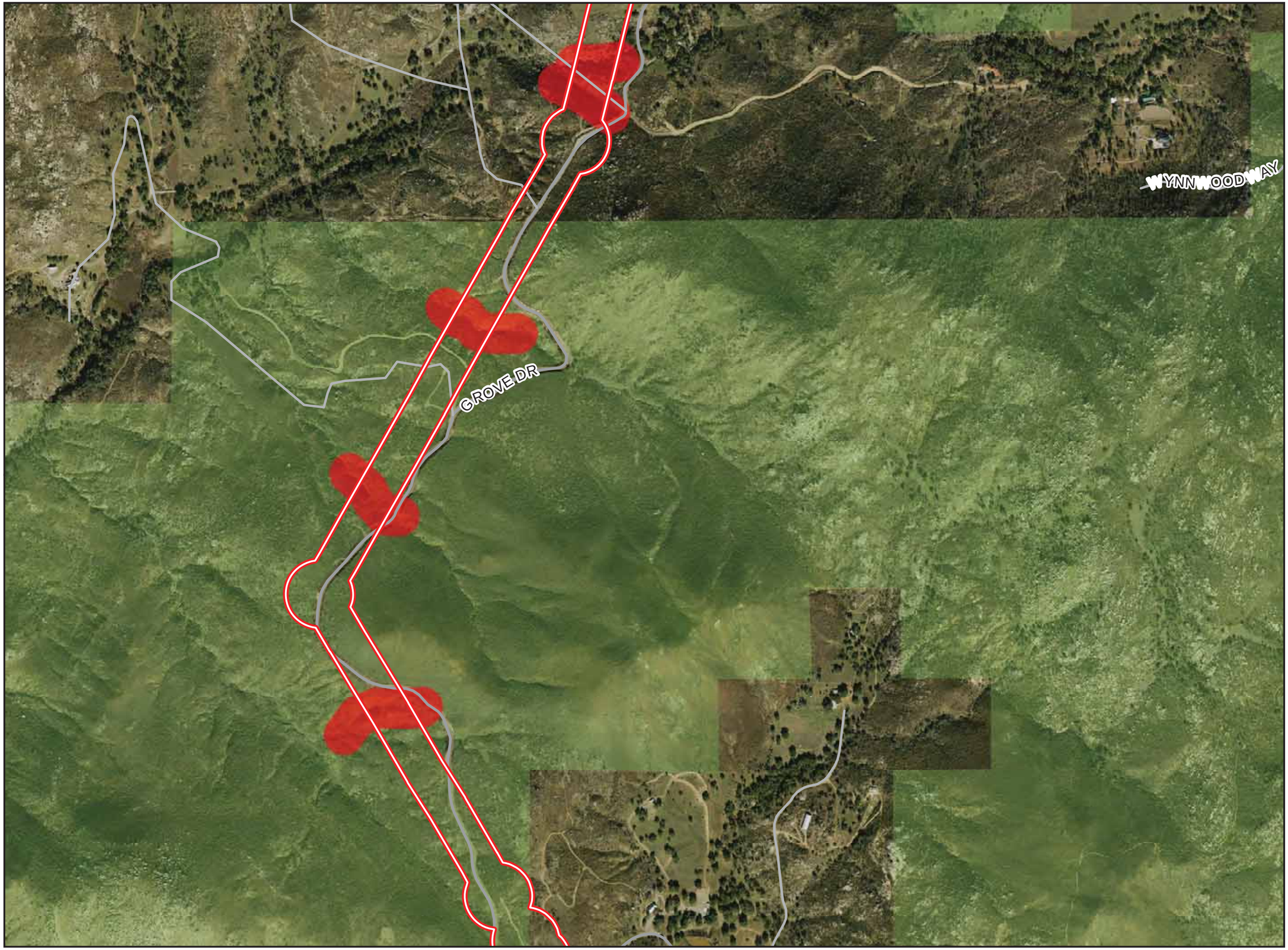


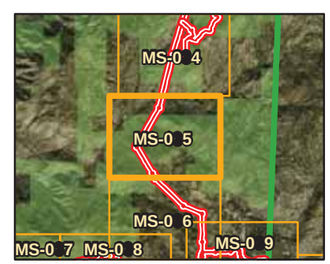
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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MS-0

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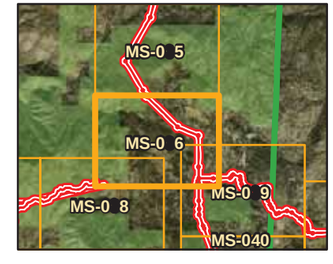
Arroyo Toad S r ey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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MS-0 6

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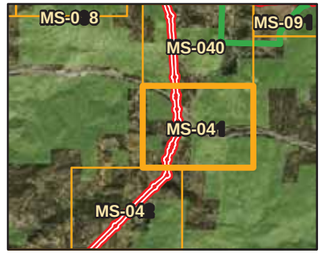
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-041

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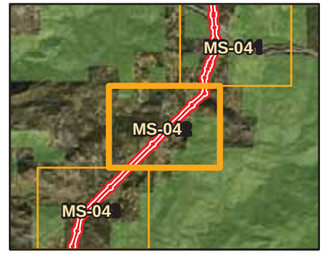
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-042

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Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet

PAGE:
MS-04

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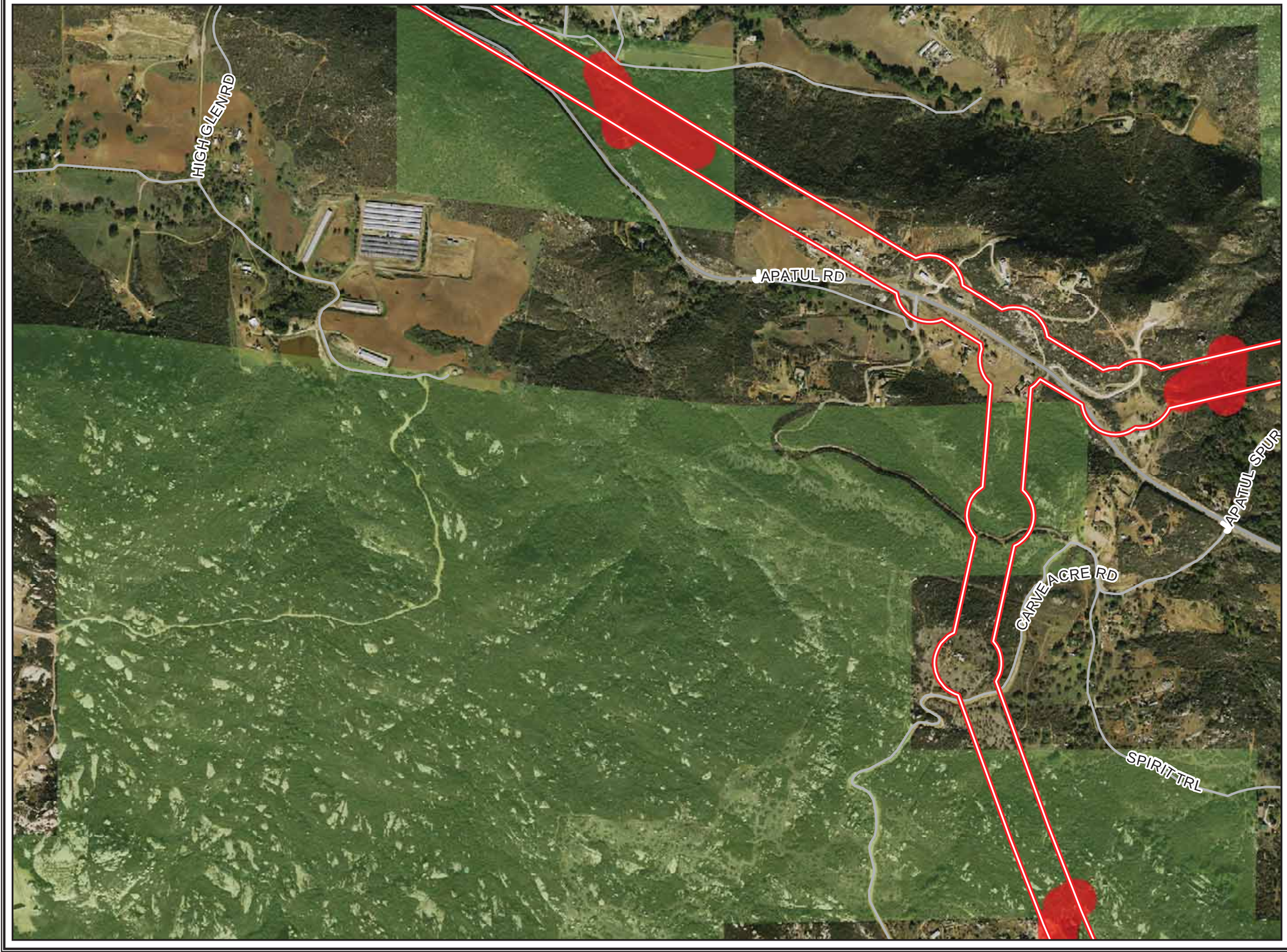


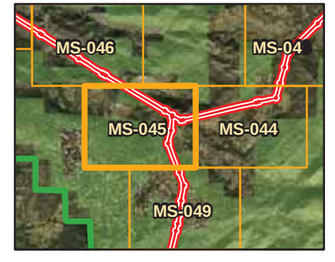
Arroyo Toad S r ey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-04

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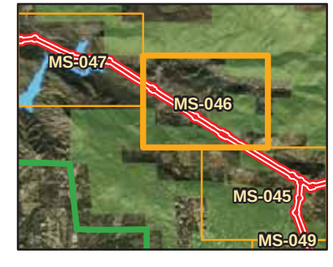
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-046

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Arroyo Toad Survey Sites

APATUL RD

SPANISH BIT PL

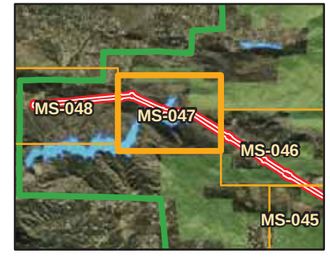
ABRAMS RIDGE RD

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-04

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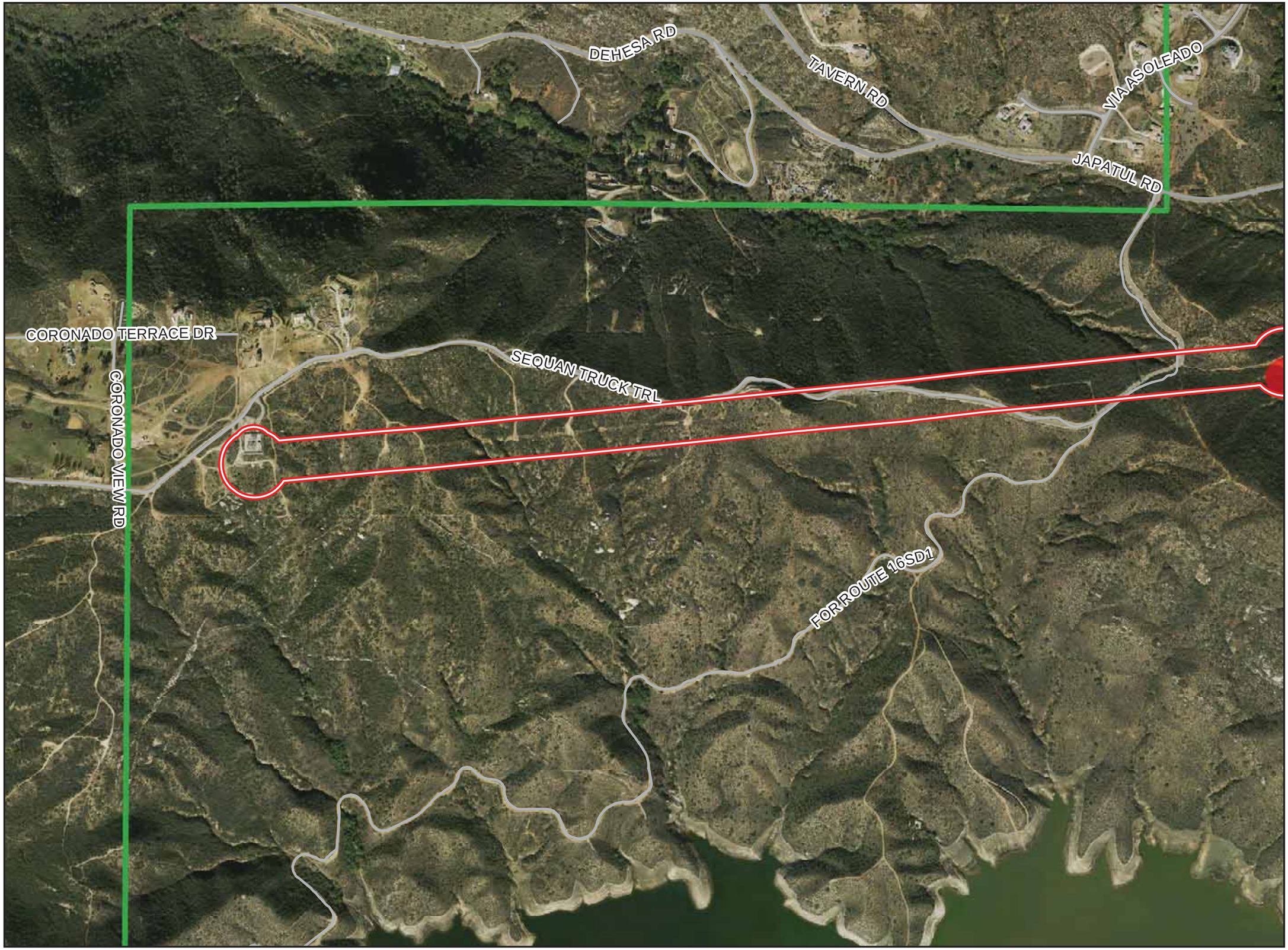


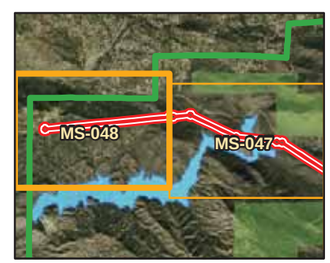
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 425 850 1,275

Feet



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MS-048

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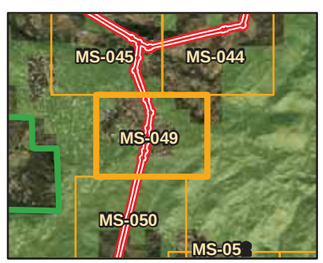
Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



PAGE:
MS-04

SDGE
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Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

FOR ROUTE 16S0

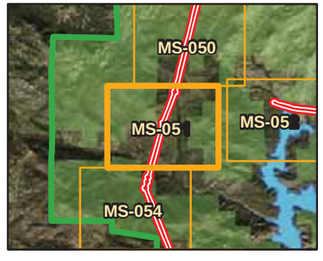
LIONS VALLEY RD

SKYE VALLEY RD

LYONS VALLEY RD

0 420 840 1,260

Feet



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SDGE

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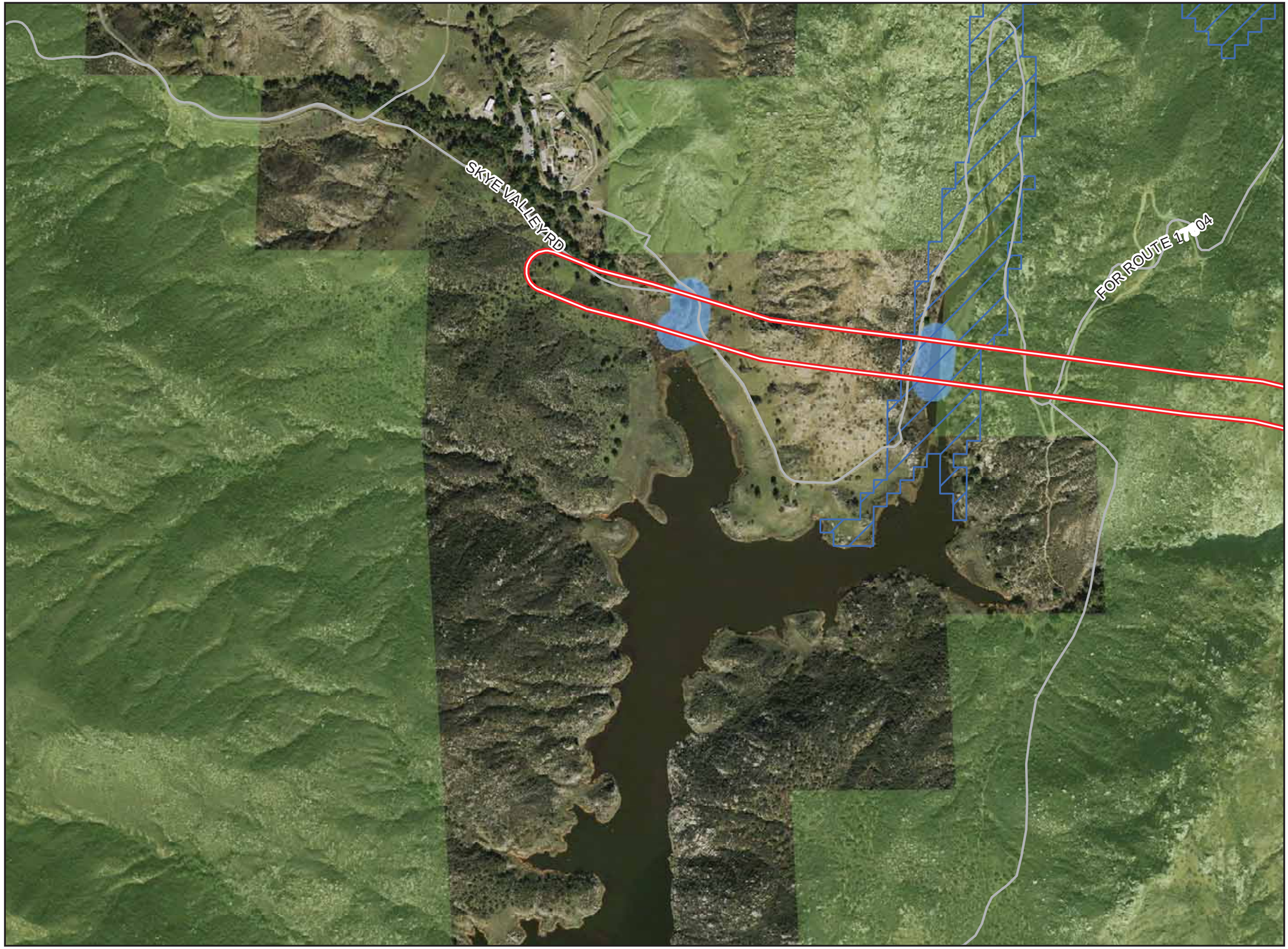


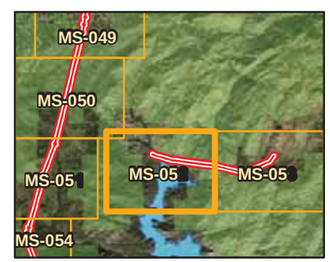
Arroyo Toad S r ey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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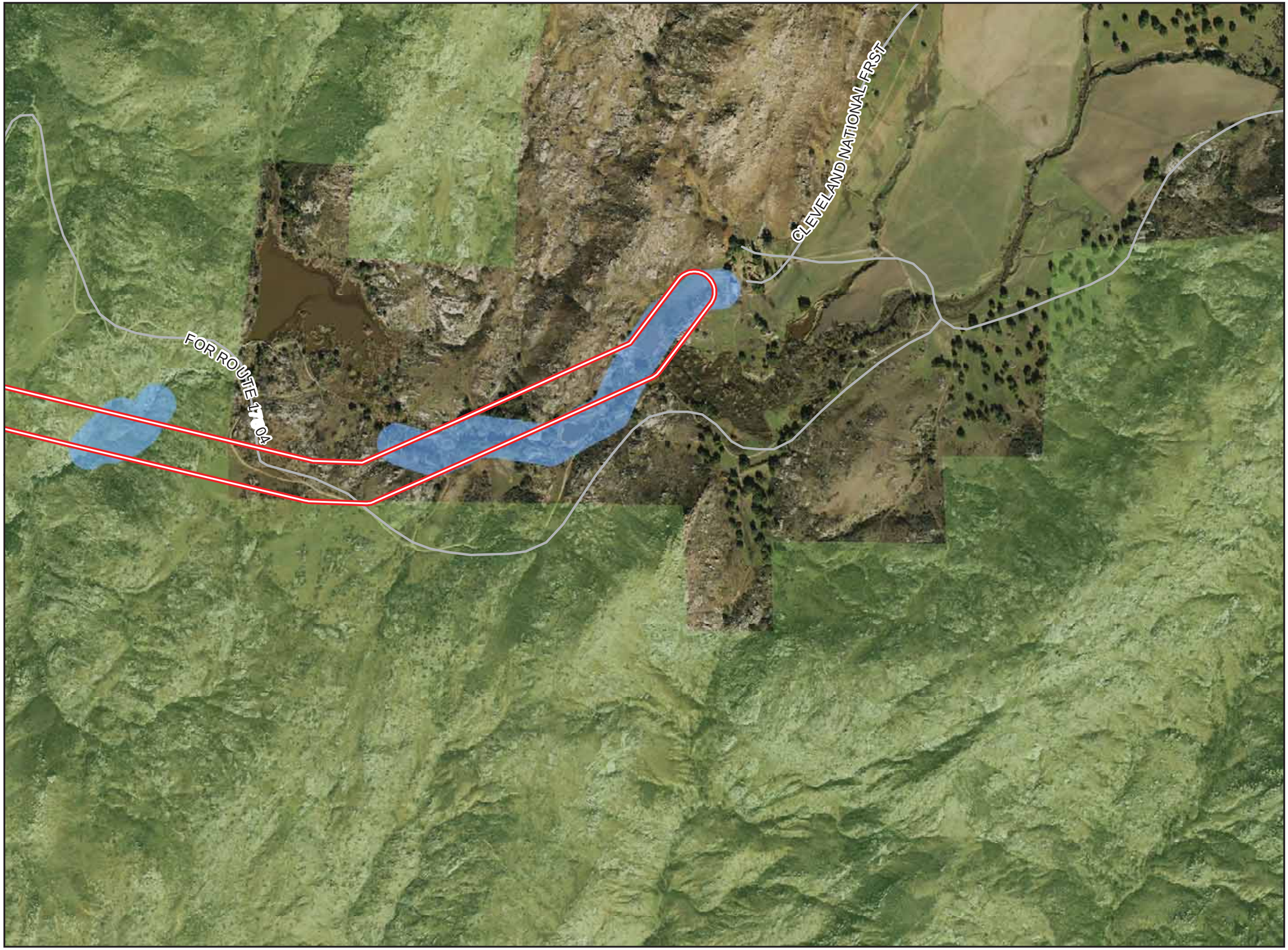
SDGE
A Sempra Energy utility



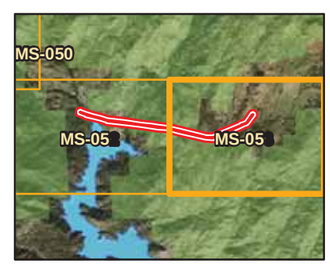
Arroyo Toad S r ey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

0 420 840 1,260

Feet



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Arroyo Toad Survey Sites

LEGEND

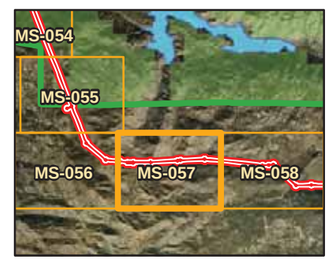
- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
- Cleveland National Forest Congressional District Boundary
- CNF Managed Lands

BARRETT LAKE RD

HORIZON VW

0 420 840 1,260

Feet



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Arroyo Toad Survey Sites

LEGEND

- Survey Area
- Not Suitable Habitat
- Suitable Habitat
- CNF Occupied Habitat
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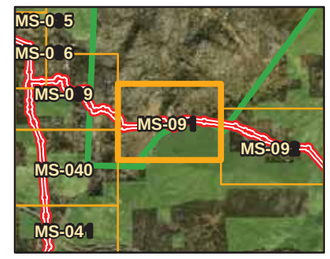
- CNF Managed Lands

0 420 840 1,260

Feet



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APPENDIX C – ARTO CONTROL SITE SURVEY DATA TABLE

APPENDIX C – ARTO CONTROL SITE SURVEY DATA TABLE

Date	Biologist	Time (military)	Weather Conditions	Survey Location	Species Observed	Behavior Observed
5/4/2010	Ruben Ramirez, Kris Alberts, Mike McEntee, Paul Morrissey	2000-2350	Temp:64.4-41°F Wind: 0-1mph	GPS: N 32. 71568 W 116.49954	***Eggs, Larvae or Juveniles:*** *Bufo boreas* ***Adults:*** *Bufo boreas, Bufo californicus,*	***Vocalization:*** *Pseudacris regilla, Bufo californicus, Bufo boreas* ***Mating:*** *Bufo californicus, Bufo boreas*
5/10/2010	Kris Alberts, Erik Strods	2030-2230	Temp: 51-51°F Wind: 1-8	GPS: N 33.15571 W 116.44469	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *Bufo boreas*	***Vocalization:*** *none* ***Mating:*** *none*
5/11/2010	Paul Morrissey	1945-2250	Temp:69.8-39°F Wind: 0-2.5	GPS: N 32. 71568 W 116.49954	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *none*	***Vocalization:*** *none* ***Mating:*** *none*
5/18/2010	Paul Morrissey, Damien Edwards, Sarah Harris	1900-2330	Temp:61-57°F Wind:0-4mph	GPS: N 32. 71568 W 116.49954	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *none*	***Vocalization:*** *none* ***Mating:*** *none*
5/18/2010	Kris Alberts Seth Reimers	2210-2440	Temp: 53-57°F Wind: 0mph	GPS: N 33.15571 W 116.44469	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *Bufo californicus, Bufo boreas, Rana catesbiana*	***Vocalization:*** *Bufo californicus, Bufo boreas* ***Mating:*** *none*
5/25/2010	Paul Morrissey	1900-2148	Temp:61.2-57.5°F Wind:0-0.5	GPS: N 32. 71568 W 116.49954	***Eggs, Larvae or Juveniles:*** ***Adults:*** *Bufo californicus*	***Vocalization:*** *Bufo californicus* ***Mating:*** *none*
5/25/2010	Kris Alberts	2010-2155	Temp: 54-48°F Wind: 0-10	GPS: N 33.15571 W 116.44469	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *Bufo californicus, Pseudacris regilla*	***Vocalization:*** *Bufo californicus, Pseudacris regilla* ***Mating:*** *none*
6/1/2010	Paul Morrissey	1900-2130	Temp:62.8-53°F Wind:0-5	GPS: N 32. 71568 W 116.49954	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *Bufo californicus*	***Vocalization:*** *Bufo californicus* ***Mating:*** *none*
6/2/2010	Kris Albers, Seth Reimers	2104-2400	Temp: 67-50°F Wind: 0-3	GPS: N 33.15571 W 116.44469	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *Bufo boreas, Pseudacris regilla, Pseudacris cadaverina*	***Vocalization:*** *Bufo boreas, Pseudacris regilla, Pseudacris cadaverina* ***Mating:*** *none*

Date	Biologist	Time (military)	Weather Conditions	Survey Location	Species Observed	Behavior Observed
6/16/2010	Paul Morrissey	2000-2215	Temp:64.1-50°F Wind: 0-4	GPS: N 32. 71568 W 116.49954	***Eggs, Larvae or Juveniles:*** *none* ***Adults:*** *Bufo californicus*	***Vocalization:*** *Bufo californicus* ***Mating:*** *none*
The Lake Henshaw control site was a survey area stretching from: N 33° 16' 56.10" W 116 ° 44' 29.69" to N 33° 15' 26.75" W 116° 44' 45.63". The midpoint location of this area was under the transmission line at: N 33° 15'57.11" W 116° 44' 46.99" . The midpoint location is listed in this table. But ARTO were heard calling at different times and abundances throughout the whole survey area during the survey season.						

APPENDIX D – ARTO SURVEY DATA TABLE

APPENDIX D – ARTO SURVEY DATA TABLE

Date	Biologist	Time (military)	Weather Conditions	Survey Location	Species Observed (including vocalizations)
4/29/2010	Kris Alberts, Erik Strods	1100-1445	Temp: 45-38°F Wind: 0mph	Map pages 008, 009, 010 &012	***Larvae or Juveniles:*** *Pseudacris regilla, Spea hammondii* ***Adults:*** *Bufo boreas, Psuedacris regilla*
4/30/2010	Paul Morrissey	1735-2035	Temp: 60-55°F Wind: N/A	Map pages 041, 042, 043, 045, 046, 047, 050	***Larvae or Juveniles:*** *none* ***Adults:*** *Psuedacris regilla*
5/6/2010	Frank W	1610-2034	Temp:74-59°F Wind: 0-3mph	Map pages 015, 017	***Larvae or Juveniles:*** *none* ***Adults:*** *none*
5/7/2010	Frank W	1654-2058	Temp:77-67°F Wind: 0-3mph	Map pages 015, 022	***Larvae or Juveniles:*** *none* ***Adults:*** *Rana catesbeiana*
5/7/2010	Paul Morrissey	1540-2122	Temp:77-56 °F Wind:0-5mph	Map pages 026, 027	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Psuedacris cadaverina, Bufo boreas*
4/30/2010	Mike McEntee	1600-2000	Temp: 75-55°F	Map Pages 028, 029, 030, 034, 035, 036	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Psuedacris cadaverina, Bufo boreas*
5/10/2010	Kris Alberts, Erik Strods	1100-2230	Temp:69-51 °F Wind: 1-8mph	Map pages 008, 009 , 010& 012	***Larvae or Juveniles:*** *Rana catesbeiana* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina*
5/11/2010	John Campbell	1630-2130	Temp: 75.8-49.1°F Wind: 0-5mph	Map pages 091	***Larvae or Juveniles:*** *none* ***Adults:*** *none*
5/11/2010	Paul Morrissey	1945-2250	Temp: 56.8-39°F Wind:0-2.5mph	Map pages 057	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris cadaverina, Pseudacris regilla*
5/14/2010	Frank W	1553-2215	Temp: 78-48°F Wind: 0-2.5mph	Map pages 041, 042, 046, 047, 051	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla*
5/18/2010	Paul Morrissey, Damien Edwards, Sarah Harris	1900-2300	Temp: 61-57°F Wind:0-4mph	Map pages 057	***Larvae or Juveniles:*** *Bufo boreas* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina*

Date	Biologist	Time (military)	Weather Conditions	Survey Location	Species Observed (including vocalizations)
5/18/2010	Kris Alberts, Seth Reimers	1040-2440	Temp: 65-57°F Wind: 0-9mph	Map pages 008, 009,010 & 012	***Larvae or Juveniles:*** *Bufo boreas* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina*
5/20/2010	John Campbell	1630-2200	Temp: 80.6-62.8°F Wind: 0-8mph	Map pages 052, 053	***Larvae or Juveniles:*** *none* ***Adults:*** *Psuedacris regilla, Pseudacris cadaverina, Rana catesbeiana*
5/21/2010	Frank W	1542-2233	Temp: 74-52°F Wind: 0-4pmh	Map pages 041, 042, 051	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla*
5/25/2010	Paul Morrissey	1900-2148	Temp: 61.2-57.5°F Wind: 0-.5mph	Map pages 057	***Larvae or Juveniles:*** *Bufo boreas, Pseudacris cadaverina* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina*
5/25/2010	Kris Alberts	2010-2155	Temp: 54-48°F Wind:0-10mph	Map pages 008, 009,010 & 012	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris cadaverina*
5/28/2010	Frank W	1640-2231	Temp: 74-46°F Wind: 0-3mph	Map pages 041, 042, 051	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Bufo boreas*
6/1/2010	Paul Morrissey	1900-2130	Temp: 62.8-53°F Wind: 0-5mph	Map pages 057	***Larvae or Juveniles:*** *Pseudacris cadaverina* ***Adults:*** *Pseudacris cadaverina, Pseudacris regilla*
6/2/2010	Kris Alberts, Laurie Gorman	2104-2400	Temp: 67-50°F Wind: 0-3mph	Map pages 008, 009,010& 012	***Larvae or Juveniles:*** *Pseudacris cadaverina* ***Adults:*** *none*
6/3/2010	John Campbell	1800-2200	Temp: 74.2-64.7°F Wind: 0-8mph	Map pages 052, 053	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Rana catesbieana*
6/4/2010	Frank W	1558-2258	Temp: 82-61°F Wind: 0-3.5mph	Map pages 041, 042, 051	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris cadaverina, Pseudacris regilla, Bufo boreas*

Date	Biologist	Time (military)	Weather Conditions	Survey Location	Species Observed (including vocalizations)
6/9/2010	Saraiah Skidmore, Linette Lina	2000-2200	Temp: 67.7-64 Wind: 0mph	Map pages 057	***Larvae or Juveniles:*** *Pseudacris regilla* ***Adults:*** *Pseudacris cadaverina, Pseudacris regilla*
6/10/2010	John Campbell	1815-2200	Temp: 76.4-62.2°F Wind: 0-2mph	Map pages 052, 053	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Rana catesbieana*
6/11/2010	Frank W	1533-2327	Temp: 68-53°F Wind: 0-2mph	Map pages 041, 042, 051	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina*
6/16/2010	Paul Morrissey	2000-2215	Temp: 64.1-50 °F Wind: 0-4mph	Map pages 057	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Bufo boreas*
6/17/2010	John Campbell	1750-2130	Temp:81.5-62.5°F Wind: 0-5mph	Map pages 052, 053	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris cadaverina, Pseudacris regilla, Rana catesbeiana*
6/18/2010	Frank W	1551-2239	Temp: 80-50°F Wind: 0-4mph	Map pages 041, 042, 051	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Bufo boreas*
6/24/2010	John Campbell	1730-2145	Temp: 85.5-70.8°F Wind:0-5mph	Map pages 052, 053	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Rana catesbeiana*
6/25/2010	Frank W	1455-2117	Temp: 89-70°F Wind 0-5mph	Map pages 041, 042, 051	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Bufo boreas*
7/1/2010	John Campbell	1800-2215	Temp: 86.3-68.5° Wind: 0-5mph	Map pages 052, 053	***Larvae or Juveniles:*** *none* ***Adults:*** *Pseudacris regilla, Pseudacris cadaverina, Rana catesbeiana*

APPENDIX E – AMPHIBIAN AND REPTILE SPECIES OBSERVED

APPENDIX E – AMPHIBIAN AND REPTILE SPECIES OBSERVED

Scientific Name	Common Name
CLASS AMPHIBIA	**AMPHIBIANS**
HYLIDEA	**TREE FROGS AND THEIR ALLIES**
Pseudacris regilla	pacific chorus tree frog
Psedacris cadaverina	california tree frog
RANIDAE	**TRUE FROGS**
Rana (Lithobates) catesbeiana	american bullfrog
BUFONIDAE	**TRUE TOADS**
Bufo californicus	arroyo toad
Bufo (Anaxyrus) boreas	western toad
PELOBATIDAE	**SPADEFOOT TOADS AND RELATVIES**
Spea hammondii	western spadefoot
CLASS REPTILIA	**REPTILES**
VIPERIDAE	**VIPERS**
Crotalus mitchellii pyrrhus	southwestern speckled rattlesnake
Crotalus oreganus helleri	southern pacific rattlesnake
Crotalus viridis	western rattlesnake
COLUBRIDAE	**COLUBRIDS**
Lampropeltis getula californiae	california kingsnake
Masticophis lateralis	striped racer
EMYDIDAE	**BOX AND WATER OR POND TURTLE**
Actinemys marmorata pallida	southwestern pond turtle
PHRYNOSOMATIDAE	**ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARD**
Sceloporus occidentalis	northwestern fence lizard
Sceloporus orcuttii	granite spiny lizard

CHAMBERS GROUP

APPENDIX F – TOTAL SPECIES OBSERVED 2010

APPENDIX F – TOTAL SPECIES OBSERVED 2010

Scientific Name	Common Name
CLASS AMPHIBIA	**AMPHIBIANS**
BUFONIDAE	**TRUE TOADS**
Bufo californicus	arroyo toad
Bufo (Anaxyrus) boreas	western toad
HYLIDEA	**TREE FROGS AND THEIR ALLIES**
Pseudacris regilla	pacific chorus tree frog
Psedacris cadaverina	california tree frog
PELOBATIDAE	**SPADEFOOT TOADS AND RELATVIES**
Spea hammondii	western spadefoot
RANIDAE	**TRUE FROGS**
Rana (Lithobates) catesbeiana	american bullfrog
CLASS REPTILIA	**REPTILES**
COLUBRIDAE	**COLUBRIDS**
Lampropeltis getula californiae	california kingsnake
Masticophis lateralis	striped racer
EMYDIDAE	**BOX AND WATER OR POND TURTLE**
Actinemys marmorata pallida	southwestern pond turtle
PHRYNOSOMATIDAE	**ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARD**
Sceloporus occidentalis	northwestern fence lizard
Sceloporus orcuttii	granite spiny lizard
VIPERIDAE	**VIPERS**
Crotalus mitchellii pyrrhus	southwestern speckled rattlesnake
Crotalus oreganus helleri	southern pacific rattlesnake
CLASS AVES	**BIRDS**
ACCIPITRIDAE	**HAWKS, KITES, EAGLES**
Buteo jamaicensis	red-tailed hawk
Buteo liniteaus	red shoulder hawk
Accipiter cooperii	cooper's hawk
AEGITHALIDAE	**BUSHTIT**
Psaltriparus minimus	bushtit
ALAUDIDAE	**LARKS**
Eremophila alpestris	horned lark
ANATIDAE	**DUCKS AND GEESE**
Anas platyrhynchos	mallard
ARDEIDAE	**HERONS AND BITTERNS**
Butorides virescens	green heron
CAPRIMULGIDAE	**NIGHTHAWKS AND NIGHTJARS**
Chordeiles acutipennis	lesser nighthawk
Phalaenoptilus nuttallii	common poorwill
CARDINALIDAE	**CARDINALS**
Passerina amoena	lazuli bunting
Pheuticus melanocephalus	black-headed grosbeak
CATHARIDAE	**NEW WORLD VULTURES**
Cathartes aura	turkey vulture
CHARADRIIDAE	**PLOVERS**

Scientific Name	Common Name
Charadrius vociferus	killdeer
COLUMBIDAE	**PIGEONS & DOVES**
Columba fasciata	band-tailed pigeon
Zenaida macroura	mourning Dove
CORVIDAE	**JAYS, MAGPIES, & CROWS**
Corvus brachyrhynchos	American crow
Aphelocoma californica	Western scrub jay
Cyanocitta stelleri	Steller Jay
Corvus corax	Common Raven
EMBERIZIDAE	**EMBERIZIDS**
Melospiza melodia	song sparrow
Pipilo crissalis	California towhee
Junco hyemalis	dark-eyed junco (Oregon var.)
Piplio maculates	spotted towhee
Chondestes grammacus	Lark Sparrow
FALCONIDEA	**FALCONS**
Falco sparverius	American kestrel
FRINGILLIDAE	**FINCHES**
Spinus psaltria	lesser goldfinch
Carpodacus mexicanus	house Finch
HIRUNDINIDAE	**SWALLOWS**
Petrochelidon pyrrhonota	Cliff Swallow
Stelgidopteryx serripennis	Northern rough-winged swallow
ICTERIDAE	**BLACKBIRDS & ORIOLES**
Agelaius phoeniceus	red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Sturnella neglecta	western meadowlark
Icterus bullockii	Bullock’s oriole
Molothrus ater	brown headed cowbird
ODONTOPHORIDAE	**NEW WORLD QUAIL**
Callipepla californica	California quail
PARIDAE	**CHICKADEES AND TITMICE**
Baeolophus inornatus	oak titmouse
PARULIDAE	**WOOD- WARBLERS**
Dendroica petechia	Yellow warbler
Geothlypis trichas	Common yellowthroat
Vermivora celata	Orange-crowned warbler
Wilsonia pusilla	Wilson’s warbler
PHASIANIDAE	**UPLAND GAME BIRDS**
Meleagris gallopavo	Wild turkey
PICIDAE	**WOODPECKERS& SAPSUCKERS**
Melanerpes formicivorus	Acorn Woodpecker
Colaptes auratus	Northern Flicker
Picoides nuttallii	Nuttall’s Woodpecker
PODICIPEDIDAE	**GREBES**
Aechmorphorus occidentalis	Western grebe
SITTIDAE	**NUTHATCHES**
Sitta carolinensis	White-breasted nuthatch
STRIGIDAE	**TYPICAL OWLS**

Scientific Name	Common Name
Bubo virginianus	Great-horned owl
STURNIDAE	**STARLINGS**
Sturnus vulgaris	European starling
TIMALIIDAE	**BABBLERS**
Chamaea fasciata	Wrentit
TROCHILIDAE	**HUMMINGBIRDS**
Calypte anna	Anna's hummingbird
Glaucis hirsutus	Rufous-breasted hermit
Archilochus alexandri	Black-chinned hummingbird
TROGLODYTIDAE	**WRENS**
Troglodytes aedon	House wren
Catherpes mexicanus	Canyon wren
Salpinctes obsoletus	Rock wren
TURDIDAE	**THRUSHES**
Sialia Mexicana	Western Bluebird
TYRANNIDAE	**TYRANT FLYCATCHERS**
Myiarchus cinerascens	ash-throated flycatcher
Sayornis nigricans	Black phoebe
Empidonax traillii	willow flycatcher
Empidonax difficilis	Pacific-slope flycatcher
Contopus sordidulu	Western wood-pewee
TYTONIDAE	**BARN OWLS**
Tyto alba	barn owl
VIREONIDAE	**VIREOS**
Vireo bellii pusillus	Least bell's vireo
CLASS INSECTA	**INSECTS**
NYMPHALIDAE	**BRUSH-FOOTED BUTTERFLIES**
Nymphalis antiopa	Mourning cloak
PAPILIONIDAE	**PARNASSIAN & SWALLOWTAIL BUTTERFLIES**
Papilio eurymedon	pale swallowtail
Papilio glaucas	Tiger swallowtail
PIERIDAE	**WHITES, SULPURS, & ORANGETIP BUTTERFLIES**
Anthocaris sara	Sara's orangetip
CLASS MAMMALIA	**MAMMALS**
CANIDAE	**DOGS**
Canis latrans	coyote (tracks, scat)
CERVIDAE	**DEER**
Odocoileus hemionus	mule deer
CRICETIDAE	WOODRATS & PACKRATS
	unid. Woodrats (dens)
ORDER CHIOPTERA	**BATS**
	unid. Bats
HERTEROMYIDEA	**KANGAROO RATS**
Dipodomys sp.	Kangaroo rat
LEPORIDAE	**HARES & RABBITS**
Sylvilagus auduboni	Cotton tail
MEPHITIDAE	**SKUNKS**
Mephitis mephitis	striped skunk

Scientific Name	Common Name
PROCYONIDAE	**RACOONS**
Procyon lotor	Raccoon (tracks)
CLASS ACTINOPTERYGII	**RAY-FINNED FISHES**
CENTRARCHIDAE	**SUNFISH**
Micropterus salmoides	Largemouth bass
Lepomis macrochirus	Bluegill
CYPRINIDAE	**CYPRINIDS**
Cyprinus carpio	Common Carp
ICTALURIDAE	**CATFISH**
Ictalurus punctatus	Channel catfish
POECILIIDAE	**MOSQUITOFISH, MOLLIES & SWORDTAILS**
Gambusia affinis	Mosquito fish