



**2019/2020 Expenditure Report
To the Cosco Busan Oil Spill Settlement Fund
Trustee Council**



Introduction

The Final Damage Assessment and Restoration Plan/Environmental Assessment (DARP/EA; Cosco Busan 2012) for the Cosco Busan Oil Spill, identified a restoration project for marbled murrelets (*Brachyramphus marmoratus*) injured by the release of oil from the M/V Cosco Busan oil spill occurring in San Francisco Bay on November 7, 2007. The intent of the project was to restore marbled murrelet populations through a variety of measures, including corvid management. Nest predation by corvids, especially common ravens (*Corvus corax*) and Steller's jays (*Cyanocitta stelleri*), is thought to be one of the primary causes for low productivity among marbled murrelets. Corvid populations are artificially high in areas where human food is readily accessible. Management efforts to reduce food subsidies near campgrounds are intended to reduce corvid densities that are influenced by visitor food sources, thereby reducing nest predation risk for nearby murrelets. Specifically, the DARP/EA states that marbled murrelet restoration is to "take place by reducing human food subsidies in and around campgrounds and picnic areas to displace those corvids that have become dependent on human-food subsidies". Management efforts known to minimize the availability of human food to corvids include installation of wildlife-proof garbage/recycle receptacles and improved water/dish drains, and targeted outreach and interpretation. Corvid management within Humboldt Redwoods State Park (HRSP) and Grizzly Creek Redwoods State Park (GCRSP), was identified as a preferred project and was subsequently funded by the Trustee Council in February 2015 (Maps A and B). This report contains accounting expenditures (Tables 1 and 2) and a brief description of corvid management actions completed in these parks within the North Coast Redwoods District of California State Parks (CSP) with Cosco Busan Oil Spill Trust Funds.

Project Accomplishments

Project scoping for the infrastructure improvements at GCRSP began in December 2015. In April 2016, 32 wildlife-proof food lockers, 4 wildlife-proof trash bins, 4 wildlife-proof recycling bins, 4 wildlife-proof trash dumpsters, and 13 wildlife-proof grated water drain casings were installed at GCRSP campground (Map C), replacing existing non-wildlife-proof infrastructure (Table 3). Work was performed by a volunteer AmeriCorps crew under the supervision of a CSP Skilled Laborer (SL) and an Environmental Services Intern (ESI).

Environmental review for infrastructure replacement at all HRSP facilities began in May 2016 and was completed in February 2017. Based on lessons learned at GCRSP, a two-person hole auger was purchased in 2017 to reduce project costs from equipment rentals. Installation of predator-proof infrastructure at HRSP began in March 2017, where 77 wildlife-proof food lockers, 8 wildlife-proof trash/recycling bins, 10 wildlife-proof trash dumpsters, and 35 wildlife-proof grated water drain casings were installed. Additional work was done along the Avenue of the Giants at day-use areas (Maps H, I, and J) in preparation for later installations. Work was performed by AmeriCorps and California Department of Forestry and Fire (Cal Fire) crews, under the supervision of a CSP SL and an ESI (Photos - Appendix A). In 2017, we switched to a pitch-top style wildlife-proof dumpster instead of the Park style that was used at GCRSP, due to issues with maintenance and damage incurred to the Park style units during service (Photo 34). A switch in management to more emphasis on recycling has also increased the need for

recycling bins over trash bins. Interpretive signage was ordered and purchased in October 2017 (Appendix B). Costs for interpretive signage and stickers has increased over time since the initial proposal, including an increase due to a change in sticker materials. Experience and adaptive management at Redwood National and State Parks (RNSP) has shown that use of a reflective material for signage stickers increases visitor awareness and exposure to the messaging. Though more expensive, the reflective material is more durable than standard polyvinyl sticker material. Installation of interpretive table signs began in December 2017. Signs were installed on tables at all campsites and picnic areas.

In early 2018, wildlife-proof infrastructure was ordered; 85 wildlife-proof food lockers, 10 wildlife-proof recycling bins, 10 wildlife-proof trash dumpsters, and 22 wildlife-proof grated water drain casings were installed at HRSP (Table 3). During installation, the auger was damaged, and a rental tool was required to finish the installation. The new style wildlife-proof dumpsters were deployed at all campgrounds and visitor day use areas for summer season use. After several months of use, many of these units were damaged for unascertained reasons (photos 35 and 36). Inquiries to the local garbage pickup service and the manufacturer are underway and, until this issue is resolved, purchase of any remaining dumpsters is on hold. Work on drain installation is progressing slowly, due to continued plumbing issues at Hidden Springs and Burlington Campgrounds. Table signs and food locker stickers with “Keep it Crumb Clean” and “Keep Bears Out – Store All Food Inside Locker” messages were installed at all campsites/food areas.

In 2019, work on water drain casings continued at Hidden Springs campground, and four recycling bins were ordered and installed in May 2019. Ordering was initiated for the remaining food lockers, but administrative delays pushed the delivery date to Jan 2020.

Final installation of food lockers at Hidden Springs campground took place in Feb 2020. Fifty-three food lockers were ordered and 48 were installed. Five campsites planned for installation have degraded to the point of closure and are being evaluated for repairs or decommissioning. The 5 remaining lockers will be used to replace any future damaged lockers or be installed at any campsites re-opened for use. Work is continuing on the final water drain installations. Sixteen drains remain to be installed and are expected to be in by fall 2020.

Future Plans

Monitoring corvid populations is key to evaluating the effectiveness of management actions. Park-wide and campsite corvid monitoring was last completed during 2013 in HRSP. Additional funding, and/or reallocation, is required to continue this monitoring effort to assess the impacts and success of upgraded infrastructure and management efforts to reduce corvid populations. Due to changes in infrastructure numbers from the original proposal caused by decommissioned campsites (Table 3) and cost savings in labor, we propose to allocate some remaining funding toward implementing corvid monitoring at HRSP campsites, day-use facilities, and back country areas, in order to assess effectiveness of the predator control project (Table 4).

Table 1. 2019/2020 Project Expenditures

Tools and Supplies	Cost
Auger shear pins	\$11.24
<i>Subtotal</i>	\$11.24
Equipment	Cost
Recycle bins type HA2-P (4 units)	\$5,332.00
Food lockers type FS24 w/Pole mounting kits (53 units)	\$48,336.00
tax	\$4,159.27
shipping	\$2,314.00
<i>Subtotal</i>	\$60,141.27
Labor	Cost
Skilled Laborer/Equipment Operator	\$2,042.19
Cal Fire Work Crew	\$0.00
Environmental Services Intern (Project Manager)	\$3, 195.22
<i>Subtotal</i>	\$5,237.41
<i>Total Expenditures 2019/2020</i>	\$65,389.92

Table 2. Total project expenditures to date

Year and Location	Cost
Expenditures 2016 (Grizzly Creek)	\$77,891.89
Expenditures 2017 (Burlington, Cuneo, + others)	\$139,398.41
Expenditures 2018 (Hidden Springs)	\$122,744.20
Expenditures 2019/2020 (Hidden Springs)	\$65,389.92
Total expenditures	\$405,424.42

Table 3. Infrastructure installed

Infrastructure type	GCSP 2016			HRSP 2017 to 2020		
	Proposed	Installed to Date	Remaining to Install	Proposed	Installed to Date	Remaining to Install
Food Lockers	34	32*	0	235	210	0*
Water Drains	16	13*	0	106	71	16*
Trash Bins	2	4**	0	17	3	0**
Recycle Bins	3	4**	0	10	19	0**
Dumpsters	2	4**	0	28	20	8***

*Differences from proposed due to decommissioned campsites/changes in infrastructure

** Differences from proposed due to change in infrastructure management/needs

*** Proposed: reassessing needs/equipment issues

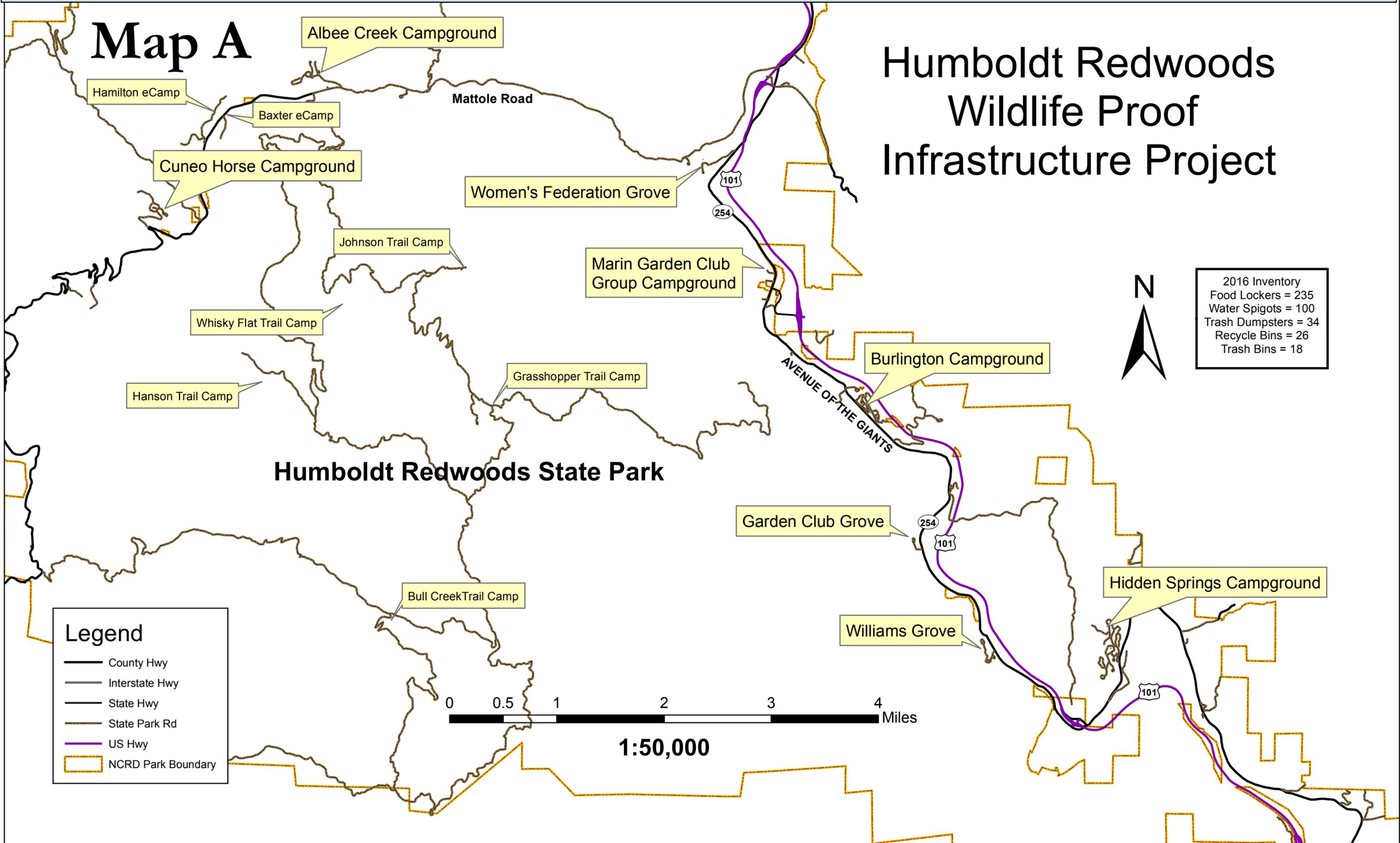
Table 4. Projected final expenses

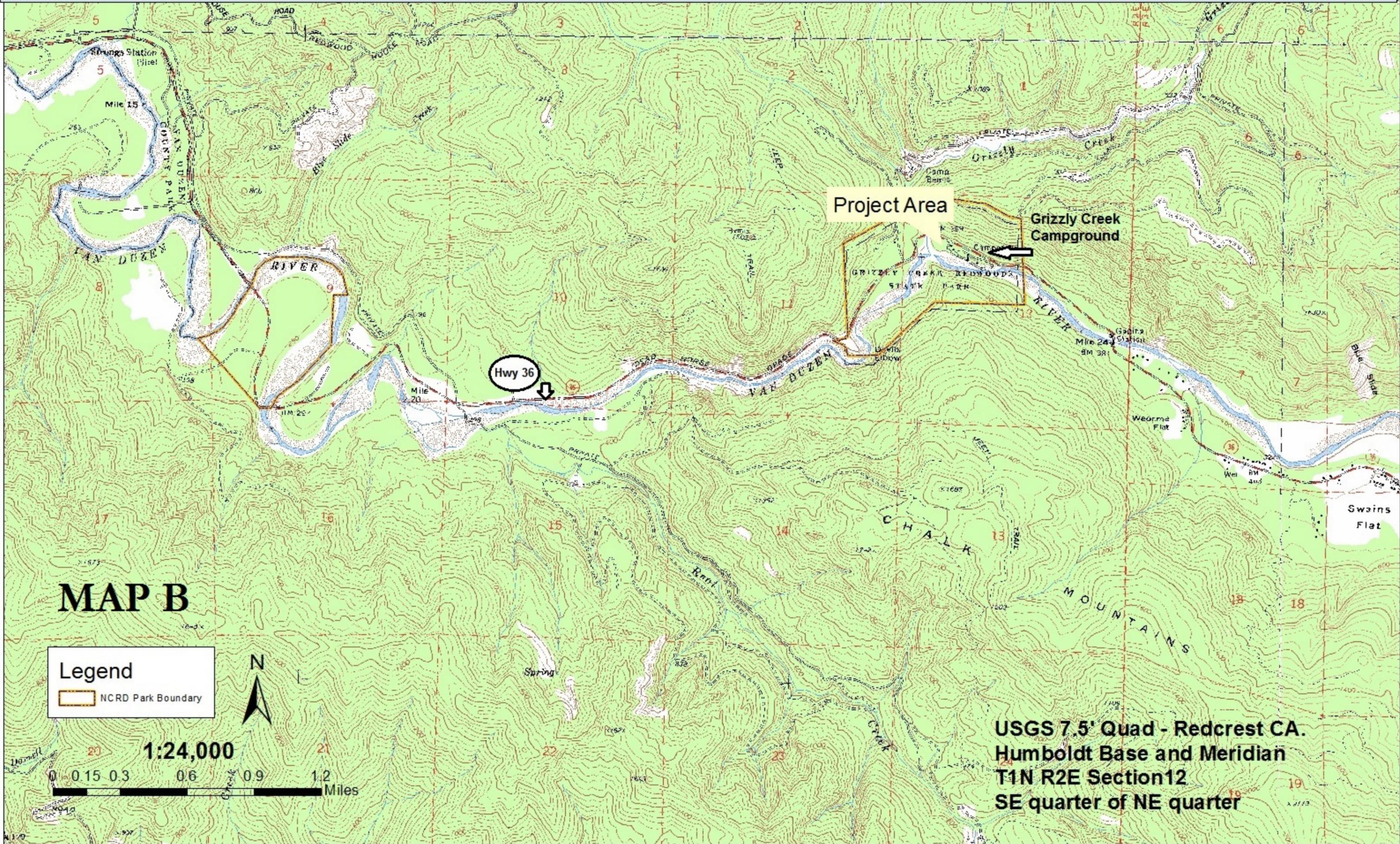
Total project allocations	\$460,437.00
Total expenditures to date	\$405,424.42
2020 project balance:	\$55,012.58
remaining to purchase/install:	ESTIMATED COSTS
8 Dumpsters	\$19,000.00
Labor/Mgt. (final drain install)	\$6,000.00
Corvid Monitoring (2 years)	\$30,012.58

Site Maps

Map A

Humboldt Redwoods Wildlife Proof Infrastructure Project





MAP C

Grizzly Creek Campground Site Infrastructure



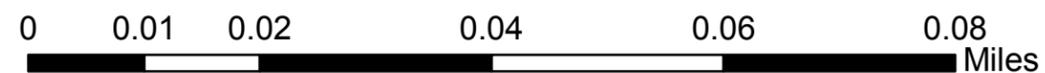
Wildlife Proof Infrastructure Upgraded 2016

Visitor Service Facilities
Type, Wildlife Proof

- ☒ Food, Yes
- Recycle, Yes
- Trash Can, Yes
- Trash Dumpster, Yes
- 🔥 Water, No
- 💧 Water, Yes
- ▒ GC_Paved
- Structures

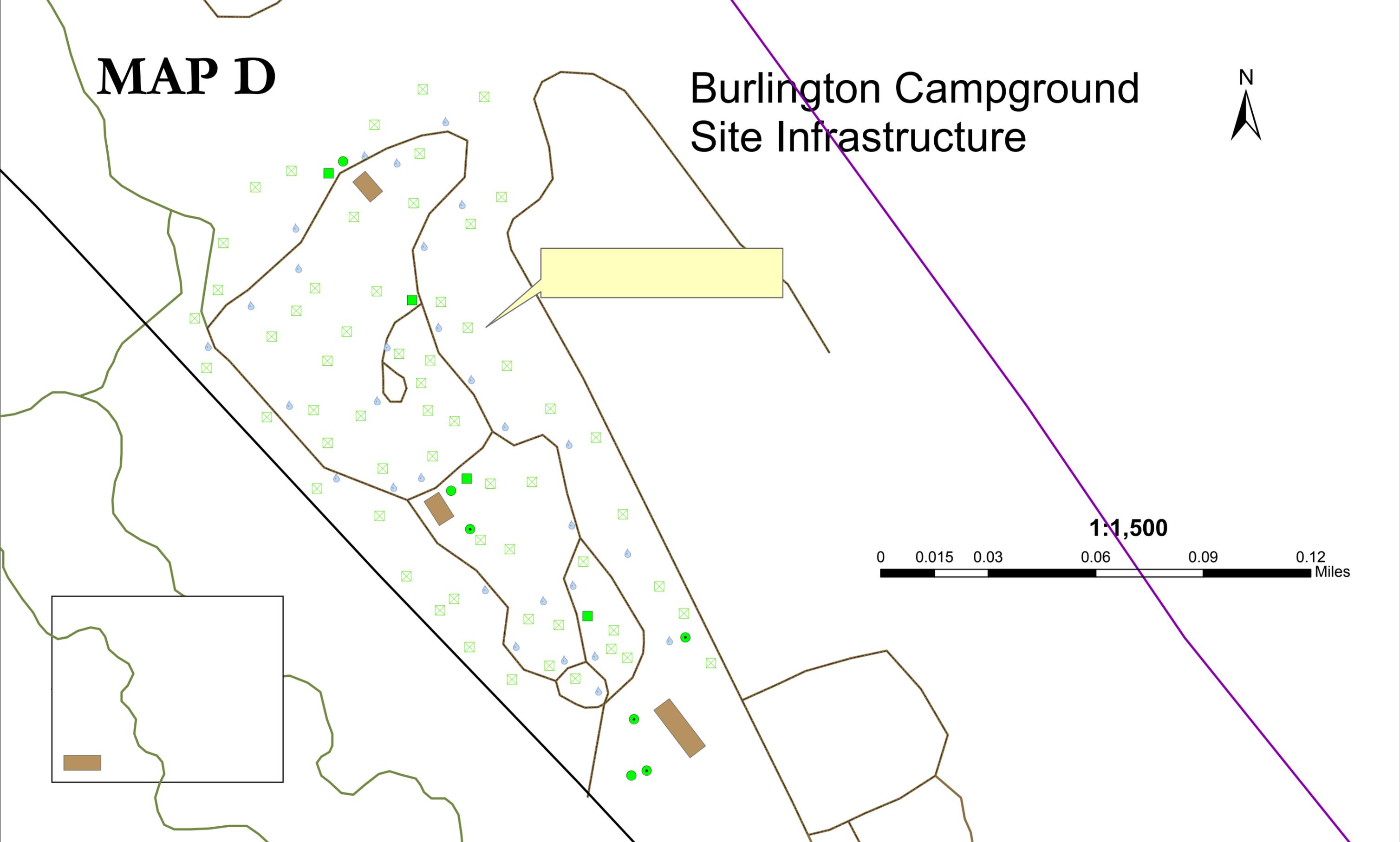


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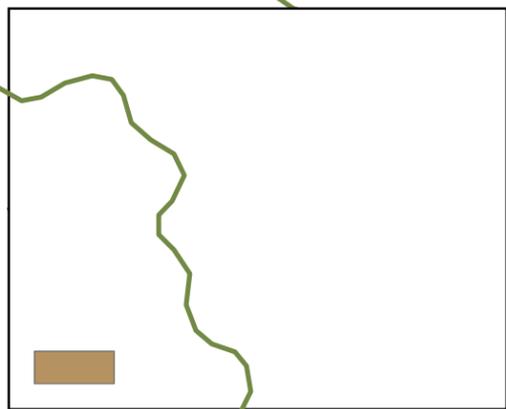


MAP D

Burlington Campground Site Infrastructure



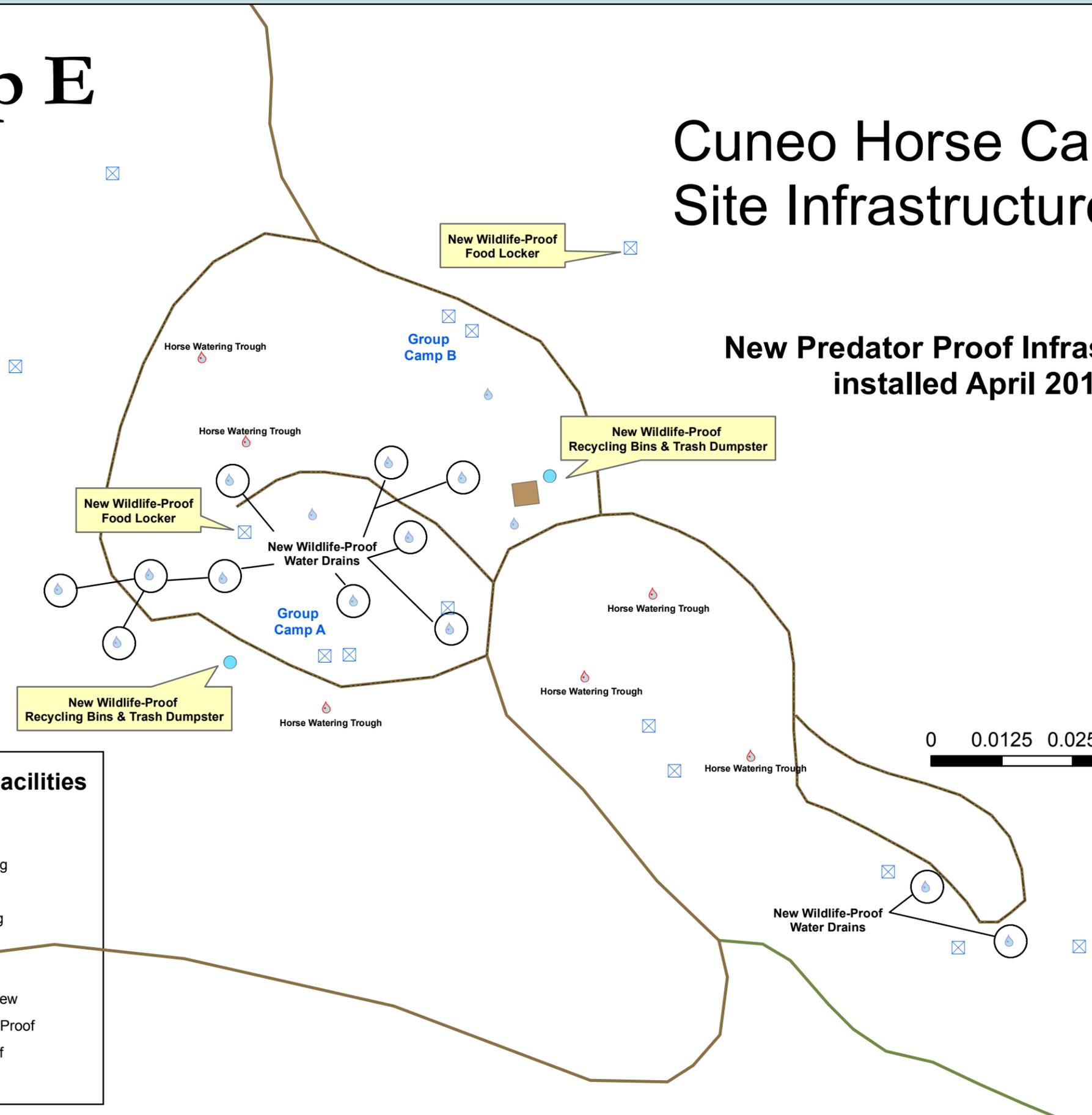
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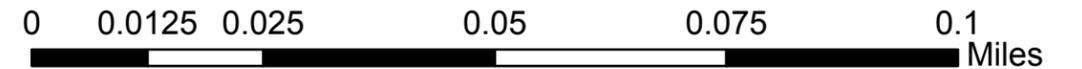
Map E

Cuneo Horse Campground Site Infrastructure

**New Predator Proof Infrastructure
installed April 2017**



1:1,250



Visitor Service Facilities

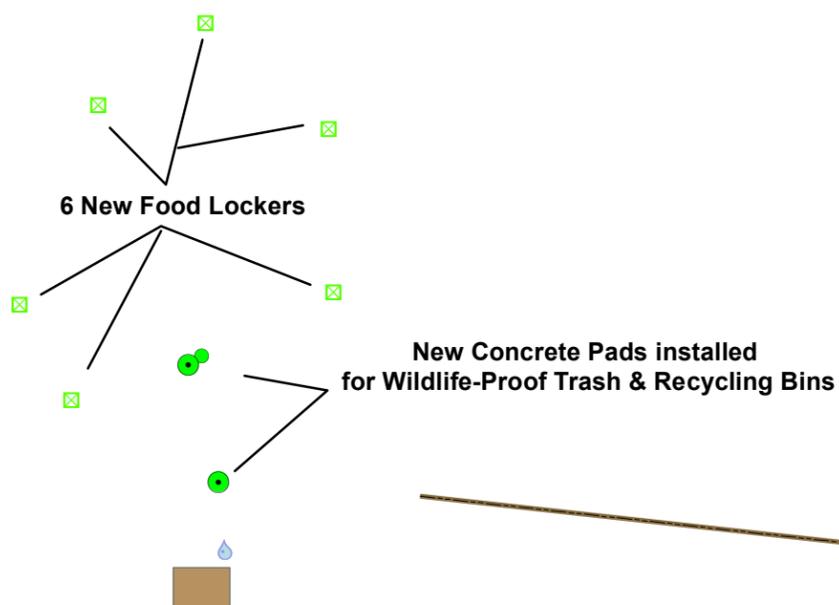
Type, Wildlife Proof

- ☒ Food Locker - New
- ☒ Food Locker Existing
- Recycle Bin - New
- Recycle Bin Existing
- Trash Bin - New
- Trash Bin Existing
- Trash Dumpster - New
- 💧 Water, Non-Wildlife Proof
- 💧 Water, Wildlife Proof
- Structures

Map F

New Predator Proof Infrastructure
installed April 2017

Marin Garden Club Group Campground Site Infrastructure



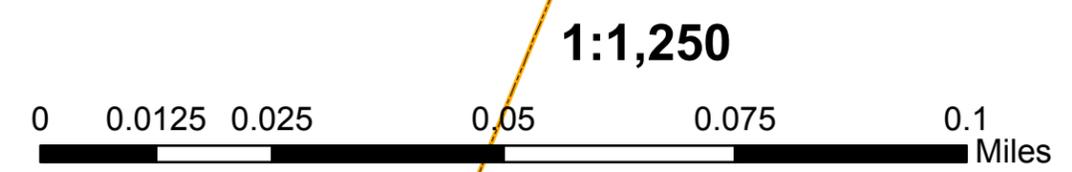
AVENUE OF THE GIANTS



Visitor Service Facilities

Type, Wildlife Proof

- Food Locker- New
- Recycle Bin - Existing
- Trash Can - Existing
- Water, Wildlife Proof
- Structures



MAP G

Hidden Springs Campground Site Infrastructure



48 Wildlife Proof Food Lockers
installed FEB 2020

5 Water Spigot Drain Casings
& 4 Recycle Bins
installed MAY 2019

6 campsites
decommissioned / out of service
due to landslide / instability

Existing Non-Predator Proof Infrastructure
to be replaced with New Predator Proof Infrastructure

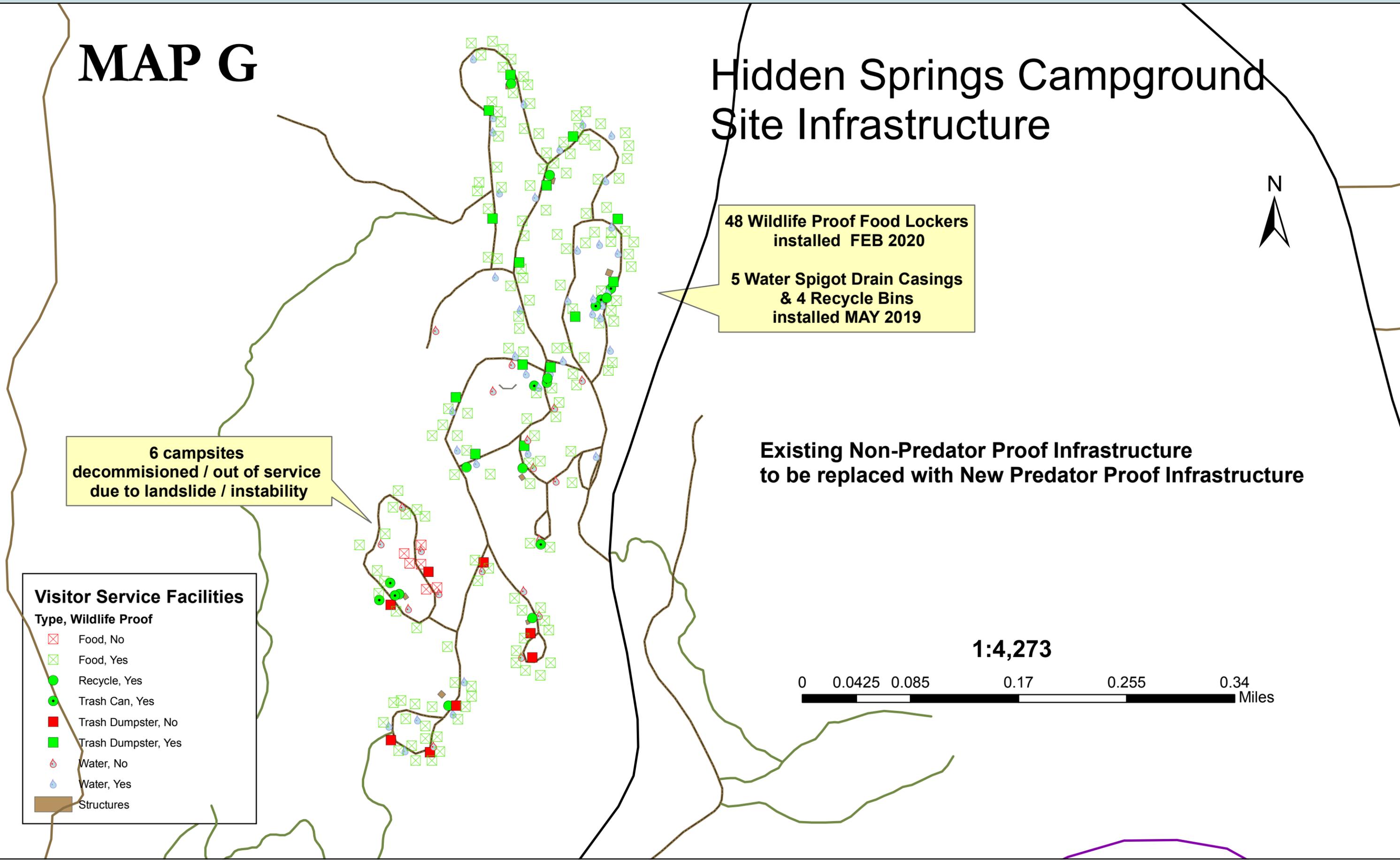
Visitor Service Facilities

Type, Wildlife Proof

-  Food, No
-  Food, Yes
-  Recycle, Yes
-  Trash Can, Yes
-  Trash Dumpster, No
-  Trash Dumpster, Yes
-  Water, No
-  Water, Yes
-  Structures

1:4,273

0 0.0425 0.085 0.17 0.255 0.34 Miles



MAP H

Williams Grove Site Infrastructure



Visitor Service Facilities

Type, Wildlife Proof

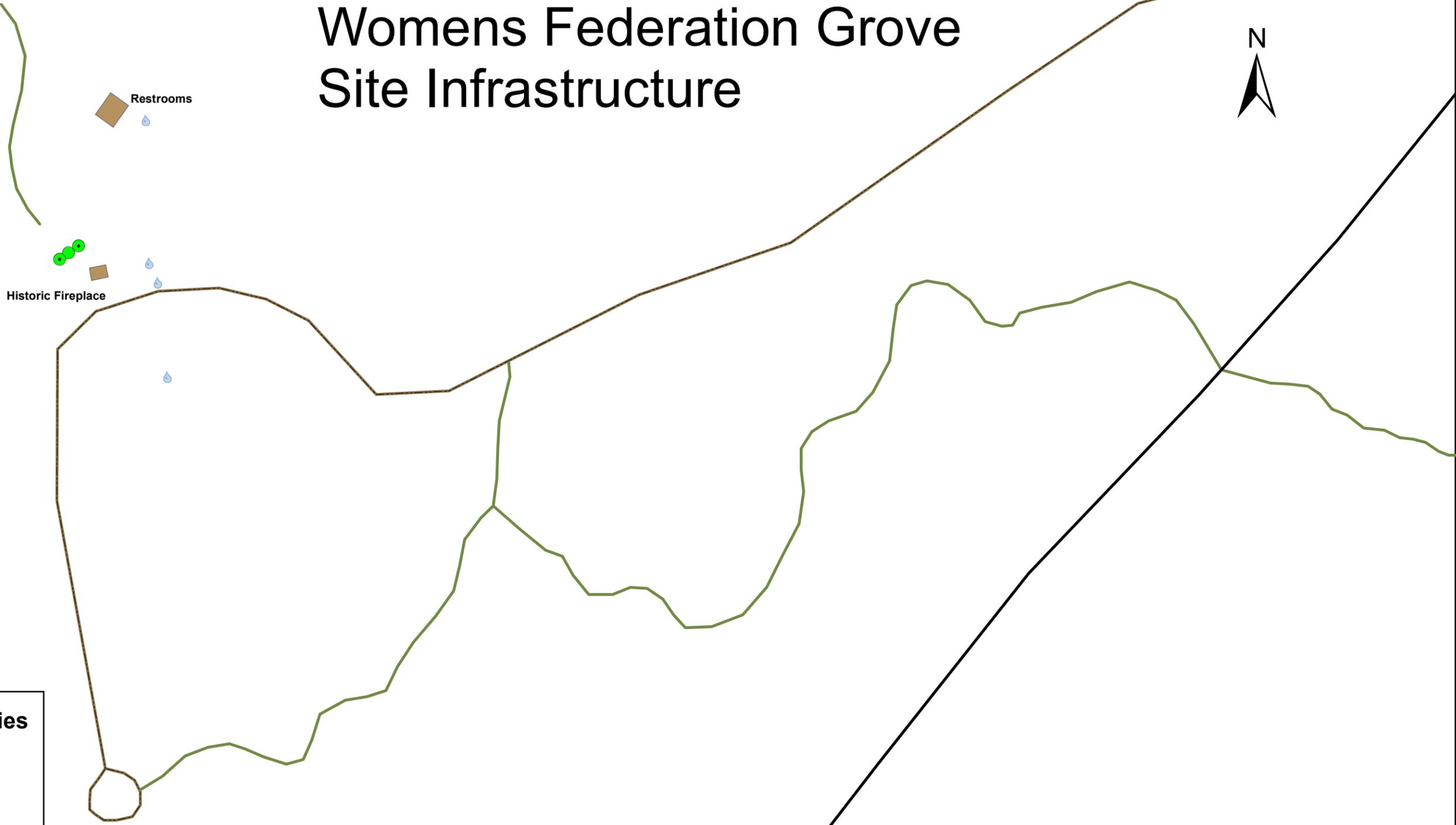
- ☒ Food, Yes
- Recycle, Yes
- Trash Can, Yes
- Trash Dumpster, No
- Trash Dumpster, Yes
- 💧 Water, Yes
- Structures

New Bathroom
Infrastructure 2018



MAP I

Womens Federation Grove Site Infrastructure

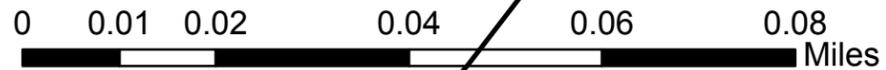


Visitor Service Facilities

Type, Wildlife Proof

-  Food, Yes - 67
-  Recycle, Yes - 5
-  Trash Can, Yes - 26
-  Trash Dumpster, Yes - 6
-  Water, Yes - 39
-  Structures

1:1,200

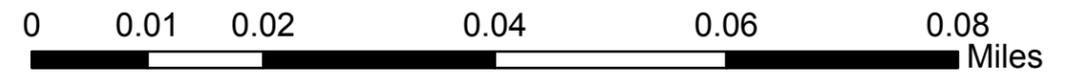


MAP J

Garden Club Grove Site Infrastructure



1:1,000



Visitor Service Facilities

Type, Wildlife Proof

-  Recycle, Yes
-  Trash Can, Yes



APPENDIX A. Project photos.



Photo 1. New wildlife-proof grated water drains at Cuneo Horse Camp.



Photo 2. New wildlife-proof trash and recycling bins at the Burlington Visitor Center.



Photo 3. New wildlife-proof dumpsters at Burlington Campground.



Photo 4. New wildlife-proof food lockers at Burlington Campground.



Photo 5. AmeriCorps crew installing new lockers at Burlington Campground.



Photo 6. AmeriCorps crew installing concrete pads at Marin Group Camp.



Photo 7. New wildlife-proof trash bins at the Burlington Visitor Center.



Photo 8. New wildlife-proof recycle bins at Burlington Campground.



Photo 9. AmeriCorps at work.



Photo 10. AmeriCorps at work.



Photo 11. AmeriCorps installing food lockers.



Photo 12. State Parks staff replacing drain casings at Cuneo Horse Camp.



Photo 13. State Parks work crew installing new drain casings at Cuneo Horse Camp.



Photo 14. New drain casing at Cuneo Horse Camp (without grated lid on).



Photo 15. Old French drain at Burlington Campground in October 2017.



Photo 16. Excavation of old French drain at Burlington Campground in October 2017.



Photo 17. Installation of new grated drain casing at Burlington Campground in October 2017.



Photo 18. New grated drain at Burlington Campground in October 2017.



Photo 19. New food locker at Cuneo Horse Camp.



Photo 20. New recycling bins at Cuneo Horse Camp.



Photo 21. New recycling bins to replace old style (on right) at Cuneo Horse Camp.



Photo 22. New food lockers at Cuneo Horse Camp.



Photo 23. New food lockers at Hidden Springs Campground.



Photo 24. New food lockers at Hidden Springs Campground.



Photo 25. New food lockers at the Marin Group Camp.



Photo 26. New recycling bin at the Marin Group Camp.



Photo 27. New interpretive stickers for food lockers



Photo 28. New interpretive sign for picnic tables.



Photo 29. New grated drain installation at Hidden Springs Campground in 2018.



Photo 30. New grated drain installation at Hidden Springs Campground in 2018



Photo 31. New grated drain at Hidden Springs Campground in 2018.



Photo 32. New trash and recycling bins at Williams Grove Day Use Area in 2018.



Photo 33. New picnic table signs at the Garden Club Grove Day Use Area in 2018.



Photo 34. Damage to new dumpsters at Grizzly Creek Campground.



Photo 35. Damage to new dumpsters at Cuneo Horse Campground.



Photo 36. Damage to new dumpsters at Hidden Springs Campground.

APPENDIX B. Interpretative Signs



Figure 1. Table sign graphics.



Figure 2. Sticker graphics for food lockers.