



Decision Memorandum
Allan Lake Wetland Restoration Project
Mogollon Rim Ranger District
Coconino National Forest
Coconino County, Arizona

Background

Water availability is one of the primary factors limiting wildlife populations in the southwest, and springs, seeps and associated wetlands are some of the most threatened, yet ecologically important habitats. These moist habitats are important to many migratory and resident birds, mammals, reptiles, fish, insects and amphibians. In addition to the 25 species of amphibians in Arizona that depend on habitats associated with springs, wetlands, and other water sources, most of the 28 species of Arizona bats rely on pooled water for drinking. Montane wetlands provide important breeding habitat for various species of waterfowl and loss of these wetland habitats has reduced the number and distribution of winter and migrating waterfowl in Arizona (Frederickson and Dugger, 1993)¹. Climate change with expected drying trends is an added risk to these important habitats.

Forest Service and state priorities for conservation and management of ranid frogs (true frogs of the family Ranidae) include the need to protect existing populations, particularly breeding sites. The northern leopard frog (*Lithobates pipiens*) has experienced dramatic declines in the number and health of functioning metapopulations across its western range, including Arizona. This amphibian species is a *Species of Greatest Conservation Need* in Arizona and is a Region 3 Forest Service sensitive species. Federal and state biologists as well as conservation organizations are increasingly concerned about the future of this species in Arizona.

Northern leopard frogs were once common around perennial waters in northern Arizona. However, due to a combination and variety of factors, including the introduction of exotic predators (e.g. sport fish, bullfrogs, crayfish), loss of habitat (e.g. spring developments, water diversions, drought) and possibly other poorly understood factors (e.g. diseases, pesticides), the species has been extirpated from most of its historical range and is largely limited to constructed livestock tanks on the Coconino National Forest. The populations on the forest in the vicinity of Stoneman Lake are the largest remaining in the state.

Allan Lake is a highly modified seasonal wetland of approximately 17 acres. This natural wetland occupies a closed basin with input from precipitation and locally derived snowmelt as its principal source of water. Soils within Allan Lake were mapped as part

¹ Frederickson, L.H. and B.D. Dugger. 1993. Management of Wetlands at High Altitudes in the Southwest. USDA Forest Service, Southwest Region. 71 pages.

of the Coconino National Forest Terrestrial Ecosystem Survey (TES) conducted during the late 80s. Soils within the footprint of Allan Lake were mapped as vertic haplaquolls, which formed under wet conditions during most of the year and have expansive clay in subsurface horizons.

In 1986, in an attempt to improve Allan Lake for waterfowl, Arizona Game and Fish Department (AZGFD) in coordination with United State Forest Service (USFS), used blasting techniques followed by earth moving equipment to deepen portions of the wetland. As part of this effort, seven channels, roughly 30' wide by 6' deep were created in a pattern resembling a wagon wheel with spokes radiating outward to a circular channel (Figure 1). The outer circular channel bounds an area approximately 17 acres in size. These activities inadvertently penetrated and removed the clay layer that previously served to maintain seasonally saturated conditions in the wetland. The channels also contribute to the lowered elevation of groundwater at Allan Lake. As a result, the wetland was noted to dry up earlier in the year. Later attempts of using bentonite to seal the bottom of the wetland were not successful.



Figure 1 – Aerial Image of Allan Lake dated 6/7/2007 obtained from Google Earth.

The outer channel incorporates a roughly 200 foot long pond (Figure 1) that was excavated in the late 1940s as a source of water for logging operations. This pond is now the deepest part of Allan Lake. Although impervious materials at the bottom of this pond could have been displaced during blasting operations, it does hold water for longer



durations than other portions of the basin (Natural Channel Design 2004²). In fact, the pond sustains hydrophytic (water-loving) plants such as Potamogeton species (native pond weeds) and even northern leopard frogs at some times of the year. It has been suggested that because of its depth relative to the adjacent ditches, this pond may be acting as a sump and, at least in part, contributing to earlier dewatering of the rest of the wetland.

Under contract with AZGFD, Natural Channel Design (NCD) evaluated the site and identified several alternatives for its restoration (Natural Channel Design, 2004). The action alternatives included 1) completely filling the channels to the approximate original basin floor elevation, and 2) partially filling the channels using native materials with possible use of a chemical additive to decrease permeability. Implementation of the first alternative would require the import of an estimated 16,000 cubic yards of soil whereas the second alternative would involve laying back the existing channel banks and using the associated borrow material to fill the channels with up to three feet of compacted native material.

In 2012 and 2013, Tom Biebighauser, an experienced wetlands restoration specialist,³ visited and assessed Allan Lake and concluded that an adequate amount of clay remained on-site to partially recreate the pre-disturbance low permeability conditions that supported the wetland. By using on-site native materials, the need for imported fill or chemical additives would be eliminated.

Project Location

The proposed project is in Township 17 N., Range 9 E., Section 28, Hutch Mountain 7.5' Quadrangle, Gila and Salt River Meridian of the Coconino National Forest on the west side of Forest Highway 3 (Lake Mary Road) along the boundary between the Flagstaff and Mogollon Rim Ranger Districts (Figures 2 and 3).

Purpose and Need

The purpose of this project is to increase the amount and duration of water storage at the historic seasonal wetland, Allan Lake, by renovating a highly modified and channelized site, thereby allowing water to flow and persist in more natural channels and restoring natural flow regimes consistent with existing water rights. There is a need to restore this wetland to provide and/or improve habitat for many waterfowl, wading birds, shorebirds, many bat species, amphibians, including the sensitive northern leopard frog, and other wildlife species.

Proposed Actions

² Natural Channel Design 2004. Trip Report, Field Evaluation and Recommendations, Allan Lake Wetland Restoration, USDA Coconino National Forest. 13 pages.

³ Thomas Biebighauser has restored over 1,500 wetlands in 20 states and 2 Canadian provinces, and has extensive experience restoring wetlands across the southwest US.



Using earthmoving and compaction equipment, clay soil displaced from past blasting and excavation activities will be used to partially fill the outer circular and radiating channels within the historic footprint of Allan Lake. The historic pond will be left unaltered so as to maintain its current water-holding capacity.

Restoration activities will be accomplished with oversight by a wetland restoration specialist. It is anticipated that, at a minimum, a rubber-tired front end loader, backhoe, paddle wheel earth mover, and dozer will be used. It is possible that water will be needed to aid in compaction. Water will be trucked to the site for use.

Partners that have contributed to the planning of this project to date include AZGFD, Bat Conservation International (BCI), and the Center for Wetlands and Stream Restoration. Other potential partners that could be involved in implementation include Ducks Unlimited, Arizona Elk Society and the Northern Arizona National Audubon Society.

Specific proposed actions will include:

1. Remove and stockpile vegetation, remaining topsoil, and displaced clay soil from the areas around each channel and the wetland bottom.
2. Reshape the channels into shallow basins of various depths and sizes, including some deeper basins to provide habitat for breeding and hibernating frogs.
3. Spread the stockpiled clay soil in thin layers over the wetland basins. Compact each layer to 95-percent or greater relative compaction with the goal of obtaining a 24-inch or thicker compacted layer of clay soil over the wetland bottom.
4. Spread the stockpiled topsoil in the wetland bottom without compaction and transplant stockpiled vegetation.
5. Seed the exposed soil with native plants and mulch using certified weed-free straw

The Coconino National Forest is the only party that has filed an application for surface water rights at Allan Lake with multiple beneficial uses including livestock and wildlife watering. Since Allan Lake occupies a closed basin with no exterior drainage, it is not anticipated that a Clean Water Act (CWA) Section 404 permit will be needed. A general permit for coverage of stormwater discharges and a Stormwater Pollution and Prevention Plan (SWPPP) is required of the contractor or the Forest Service prior to implementation to identify the Best Management Practices that will be applied to minimize surface erosion during construction.

Mitigation Measures and Best Management practices

- ✓ Prior to implementation, seed from the sensitive Arizona sneezeweed would be collected from the Allan Lake area in the fall for post-implementation planting at the restored site.
- ✓ All off road equipment would enter the forest clean of seeds, soil, vegetative matter, mud and debris.
- ✓ To minimize introduction and/or spread of noxious and invasive weeds, design features, best management practices, required protection measures and mitigations will be followed as described in Appendix B of the Final EIS for



Integrated Treatment of Noxious and Invasive Weeds on Coconino, Kaibab Prescott National Forests (2005).

- ✓ A survey for noxious and invasive weeds will be done prior to equipment being staged, and any weeds found will be removed or treated as determined by the District weed specialist.
- ✓ After the project is implemented, the area would be monitored for at least three years for noxious and invasive weeds. Any weeds found will be removed or treated as determined by the District weed specialist.
- ✓ The staging area will be on the west side of the project area, accessed by an existing power line road that runs closest to the historic wetland edge, and typically dries first. Equipment will be staged adjacent to and on the east side of that road to avoid cultural resource sites on the west side. The area between the road and the first channel also has sparse Arizona sneezeweed populations.
- ✓ Implementation will progress from one wedge shape channel configuration to the next, utilizing on-site clay material. The objective will be to re-seal the entire wetland with on-site native material, but if there is not enough material to adequately provide enough compacted clay in every portion of the existing circular and radial channels, only a portion of the channels will be re-sealed.
- ✓ In collaboration with AZGFD, the salvage, brief holding and short distance translocation of native frogs to nearby Van Deren spring may be required especially if wet areas persist in any of the project area, and/or frogs are still present. A biologist (from AZGFD or FS) will be present on days that heavy equipment will be used to monitor frog movement and take appropriate measures to protect them.
- ✓ If pumping of water on-site is required, screen mesh on hoses of ¼ inch maximum will be used. Coconino National Forest standards for disinfecting equipment that will come in contact with water will be followed to minimize the risk of spreading aquatic pathogens.
- ✓ Vegetation monitoring will be used to determine whether a fence will be needed to exclude grazing animals from the restored wetland.
- ✓ Access routes and staging areas for earthmoving and other equipment will be obliterated by grading and will be seeded and mulched as needed to achieve final site stabilization.
- ✓ Ground disturbance activities will be covered under an Arizona Pollutant Elimination System (AZPDES) Permit. A Stormwater Pollution Prevention Plan will be developed prior to any ground disturbing activities and will be implemented during the course of the project. The SWPPP will include such Best Management Practices as the use of straw wattles and silt fences to prevent off-site sediment transport, timing of construction activities to minimize the opportunity for runoff and damage to soils, and final stabilization of the site using native seeds identified in TES as representing the potential plant community.
- ✓ A traffic control plan will be implemented to insure safe travel of equipment and vehicles entering and leaving the project site on to Forest Highway 3.
- ✓ A temporary forest area closure may be needed to restrict public access to the project area during implementation.



- ✓ Implement BMPs to minimize sediment leaving the site and tracking onto Forest Highway 3 as mud or dirt attached to vehicle tires. Clean up mud or dirt tracked onto the paved surface of Forest Highway 3 as needed.

Reasons for Categorically Excluding the Proposed Action

The proposed project is consistent with the Categorical Exclusion 36 CFR 220.6 (e)(18) *Restoring wetlands, streams, riparian areas or other water bodies by removing, replacing, or modifying water control structures such as, but not limited to, dams, levees, dikes, ditches, culverts, pipes, drainage tiles, valves, gates, and fencing, to allow waters to flow into natural channels and floodplains and restore natural flow regimes to the extent practicable where valid existing rights or special use authorizations are not unilaterally altered or cancelled.*

This type of project is categorically excluded from documentation in an Environmental Assessment or Environmental Impact Statement, when there are no extraordinary circumstances related to the decision that may result in a significant individual or cumulative environmental effect. The mere presence of one or more resource conditions does not preclude the use of a categorical exclusion. It is the existence of a cause-effect relationship between a proposed action and the potential effect on these resource conditions, and if such a relationship exists, the degree of the potential effect of a proposed action on these resource conditions that determines whether extraordinary circumstances exist.

The following resource conditions will be considered in determining whether extraordinary circumstances related to the decision warrant further analysis and documentation in an environmental impact statement or an environmental assessment (36 CFR 220.6(b)(i-vii)):

i. Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species

The Endangered Species Act (ESA, 16 U.S.C. §§ 1531 – 1544) requires Federal activities not to jeopardize the continued existence of any species federally listed or proposed as threatened or endangered, or result in adverse modification to such species' designated critical habitat. As required by ESA, potential effects of this decision on listed species have been analyzed and documented in a biological evaluation (PR# 36). This decision will have no effect on any threatened, or endangered species, or their critical habitat.

A biological evaluation was prepared to evaluate the effects of this decision on Forest Service sensitive species (PR# 36). This decision will have long-term beneficial effects to the sensitive northern leopard frog by increasing breeding habitat at an existing wetland. Although there may be short-term impacts to individual leopard frogs, mitigations include moving or temporarily holding individuals present during heavy equipment operations. Sensitive bat species will benefit from the creation of open water



for drinking and improvement of riparian habitats used for foraging. The project may impact individuals, but is not likely to result in a loss of viability or trend toward federal listing. The Arizona sneezeweed, a sensitive plant species, may be affected by disturbance but will not be adversely affected and will not be put toward a trend towards future listing (PR#36). To mitigate project effects, seeds from the sneezeweed will be collected to plant in disturbed locations after the use of heavy equipment (PR# 8, 19).

ii. Floodplains, wetlands, or municipal watersheds

There are no floodplains or municipal watersheds in or near the project area. Allan Lake is identified by the US Fish and Wildlife Service's National Wetlands Inventory (PR#34) as a palustrine freshwater emergent wetland of which there are only about 345 acres on the Coconino National Forest (Frederickson and Dugger 1993). These wetlands are extremely important to waterfowl with their destruction or modification leading to reductions in numbers and distribution of winter and migrating waterfowl in Arizona (Frederickson and Dugger 1993). Wetlands and springs are few and far between in the arid southwest, and support a disproportionately high number of wildlife, including threatened and sensitive species of Leopard frog, and many bat species to name a few. These relatively rare habitats are also threatened by a drying climate. The restoration/enhancement of open water habitat will provide improved habitat for most of most of the 28 Arizona species of bats and 25 species of native amphibians, including several threatened and sensitive species, as well as many other wildlife species. Restoration will be done using proven cost effective techniques used successfully by our partners, BCI and Center for Wetlands and Stream Restoration at many other wetland sites all over the United States. This project will also improve watershed health by reducing erosion, improving water quality and retention, and helping mitigate the effects of changing climate by providing better water storage and retention. This project will allow waters to persist longer in ponds and flow into more natural channels and help restore natural flow regimes, while being consistent with existing water rights.

iii. Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas

The nearest wilderness areas, Wet Beaver and West Clear Creek are about 12 miles away from the proposed project, and there are no national recreation areas or wilderness study areas on the Mogollon Rim District. Wilderness areas will not be affected due to the small size of the project and the distance to wilderness areas.

iv. Inventoried roadless area or potential wilderness area

The nearest inventoried roadless area on the district is at Jacks Canyon, approximately 20 miles away from this proposed project. Therefore there will be no effects from this project.

v. Research natural areas

There are no research natural areas in or near the proposed project area, and therefore there will be no effects from this project.



vi-vii. American Indians and Alaska Native religious or cultural sites and archaeological sites, or historic properties or areas

Allan Lake and the adjacent areas were surveyed for cultural resources (PR#65, 66). Design features will be implemented so the cultural resource sites will be avoided and undisturbed by equipment in use during project implementation.

Public Involvement

The proposal to implement this spring enhancement project was listed on the Coconino National Forest Schedule of Proposed Actions starting on April 1, 2013. The proposal was provided to the public and other agencies and groups for comment during the combined scoping and 30-day comment period October 3 – November 4, 2013 according to the 36 CFR 215 notice, comment and appeal regulations. The legal notice was published in the Arizona Daily Sun newspaper on October 3 (PR# 56). Copies of the Proposed Action and Draft Decision Memorandum (PR# 50, 52) were sent out to 37 individuals and groups (PR# 41, 49) that are interested in forest restoration projects.

Three comments were received on the project. Arizona Game and Fish Department Region 2 expressed support of the project and suggested some clarifications to the draft decision memorandum that have been incorporated in the final version (PR# 58). The Coconino County Public Works Department also commented on the project and requested that mitigation measures be added to develop a traffic control plan for vehicles entering and leaving the project site by Forest Highway 3 and that BMPs be implemented to prevent off-site tracking of sediment and dirt by equipment and vehicles on to the paved highway (PR# 55). These two mitigations have been added to the proposed action. The Arizona Department of Environmental Quality, Water Quality Division also commented on the project and indicated that the project will require coverage under the Arizona Pollutant Discharge elimination System’s Construction General Permit PR# 54). This is included under the project mitigation measures.

The project proposed action has been reviewed by District and Forest specialists of the interdisciplinary team and did not result in the identification of issues that will lead to an Environmental Assessment or and Environmental Impact Statement. None of the public comments led to unresolved issues that will require the development of additional alternatives to the proposed action.

Findings Required by Other Laws

This decision is consistent with the Coconino National Forest Management Plan as amended, as required by the National Forest Management Act. The project follows the management emphasis for restoring and improving riparian areas and standards and guidelines for Management Area 12, Riparian and Open Water. The planning and decision-making process for this project was conducted in accordance with all applicable laws, regulations, policies and plans, including the Endangered Species Act and the National Historic Preservation Act.



There will be no effects to threatened or endangered species, or habitat, including Critical Habitat (PR# 36).

The project may impact individuals of the sensitive species, northern Leopard frog and Arizona sneezeweed during implementation, but will not result in a trend toward listing or loss of viability. In fact positive effects to habitat for the northern Leopard frog are expected (PR# 36). Mitigation measures will be implemented to protect both the northern leopard frog and Arizona sneezeweed.

The project will not impact the population trend for any Management Indicator Species or migratory birds, or result in injury, loss of productivity or nest abandonment of Bald Eagles (PR #36). The project will result in benefits to the habitat for Cinnamon Teal and Lincoln Sparrow and macroinvertebrates.

The project may impact migratory birds even though the project will be implemented towards the end of their breeding season. The project should result in benefits to migratory birds that use wetland habitats (PR#36).

No project activities will take place within cultural resource sites and all sites will be avoided by project activities. A cultural resource clearance report was completed and is located in the Project Record (PR# 65, 66).

The project is consistent with the Executive Order #12898, Environmental Justice in Minority Populations and Low-Income Populations because the proposed activities will not preclude others from using the area.

To minimize construction-related impacts to soil and water resources, all proposed work will be under a General Construction permit, a Stormwater Pollution Prevention Plan and will incorporate Forest Service Best Management Practices.

The project is compatible with existing water rights (PR# 37, 38).

Administrative Review or Appeal Opportunities

Decision Not Subject to Appeal

The 30-day comment period for this project ended on November 4, 2013. Since only supportive comments were received during the comment period, this decision is not subject to appeal (36 CFR 215.12). Implementation may begin immediately.

Contact Person

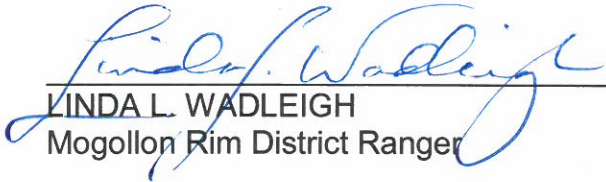
For additional information regarding this project contact: Tom Runyon, Zone Hydrologist, 8738 Ranger Road, Happy Jack, AZ 86024, 928-527-8246, email: tarunyon@fs.fed.us

Responsible Official

The responsible official for this decision is the Mogollon Rim District Ranger.



As the Responsible Official, it is my decision to implement the actions as described in this Decision Memo.


LINDA L. WADLEIGH
Mogollon Rim District Ranger

February 18, 2014
DATE

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Figure 2. Project Vicinity Map

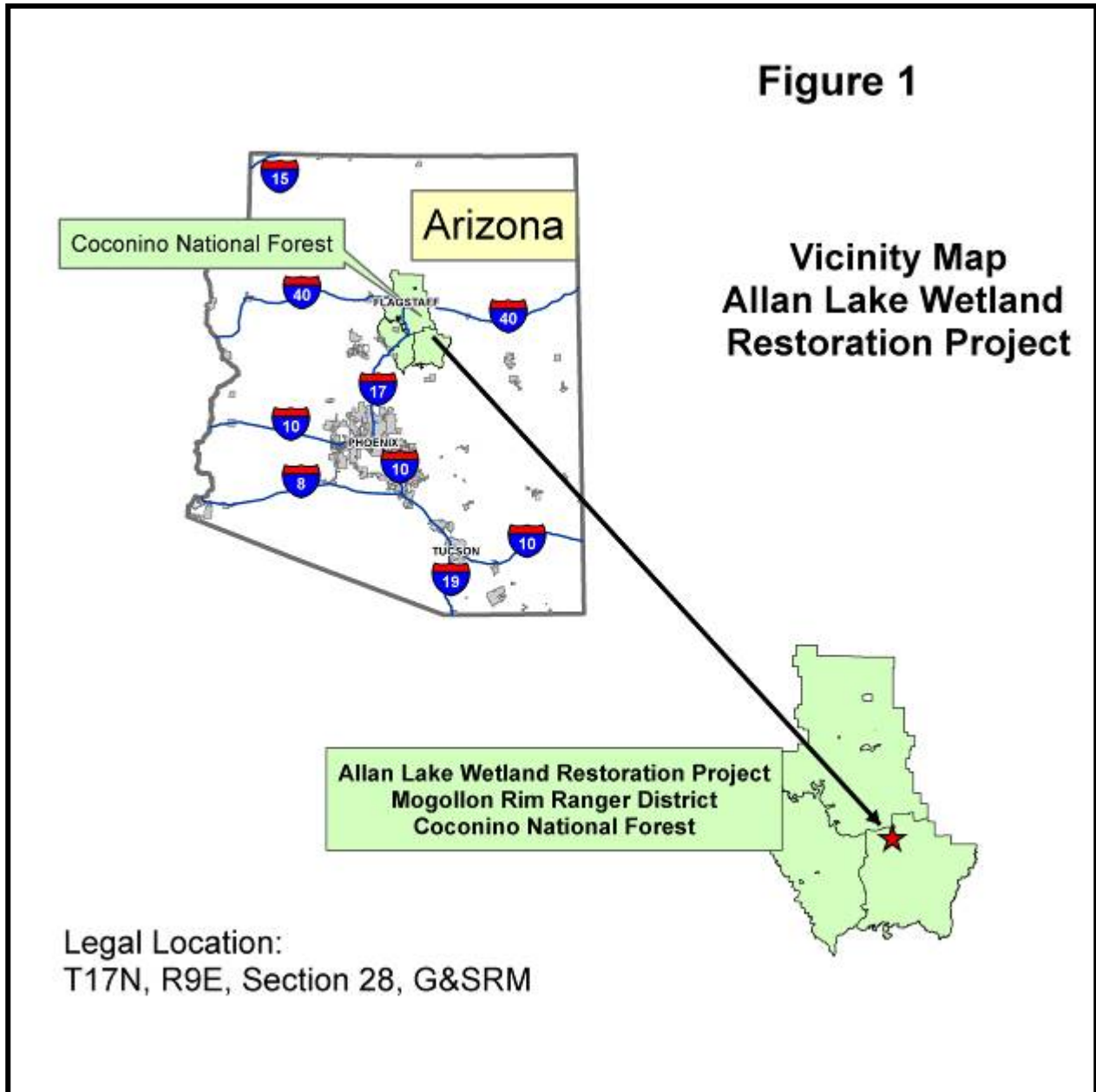
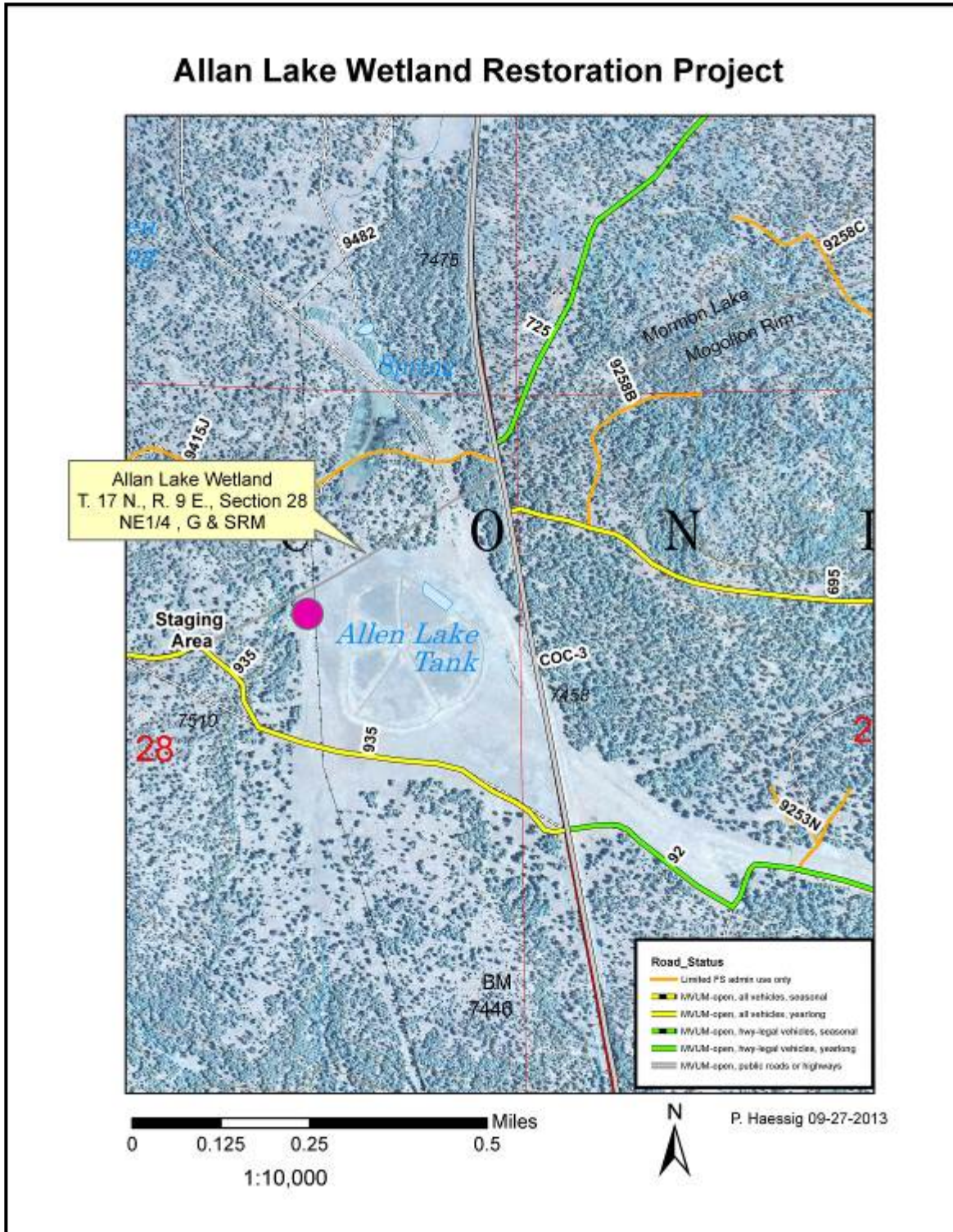


Figure 2. Project Location Map



Allan Lake Site Photos

Allan Lake covered in snow during field investigation 01/22/2012



Allan Lake March 2012



Allan Lake March 2012



Allan Lake Photos 2013, various months



04/24/13



05/29/13



Pond in Allan Lake Ditch 5/29/13



Allan Lake ditch before the monsoons, 06/11/2013



A ditch at Allan Lake 07/31/13



Pond in Allan Lake Ditch 7/31/13



A ditch at Allan Lake 08/20/2013



8/20/2013 view of 2 "spokes" from center "hub"



Pond in Allan Lake Ditch 8/20/2013