

State of Nevada Wetland Program Plan
2017 – 2022



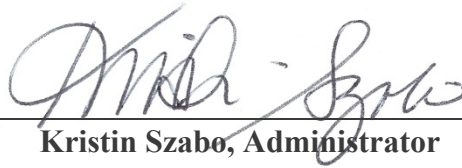
Thomas Canyon, Ruby Mountains, Nevada. © Kristin Szabo

Prepared by the Nevada Natural Heritage Program
for the
U. S. Environmental Protection Agency, Region 9
November 2016

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Nevada Natural Heritage Program

Acknowledgment of Review and Approval



Handwritten signature of Kristin Szabo in cursive script, positioned above a horizontal line.

Kristin Szabo, Administrator

November 29, 2016

Date

Executive Summary

It is estimated that Nevada has lost (i.e., converted to another type of land cover or use) approximately 52% of its historic wetland acreage. The State of Nevada has no formal or informal goal regarding wetland loss or gain, lacks a formally recognized Wetland Program Plan (WPP), and does not regulate or promote wetland or stream buffer protections. Although numerous research projects, mapping and assessment/inventories, and voluntary restoration projects have been conducted across the state by various universities, state and federal agencies, and non-profit organizations, no single agency or group exists to keep track of the locations and types of wetland projects that are underway. The decentralization of such data has made it difficult for wetland researchers and land managers to quantify and integrate knowledge related to succession, climate change, and human alteration. This has led to significant information gaps regarding the regional distribution and trends of wetland habitats across the state. In 2010, the Nevada Natural Heritage Program (NNHP) was awarded a U. S. Environmental Protection Agency (EPA) Region 9 Wetland Program Development Grant (WPDG) to formulate strategies for improving the effectiveness of protecting and restoring Nevada's wetland resources. In January of 2016, NNHP staff sent a WPP stakeholder survey to individuals representing 16 state and federal agencies, three local government or tribal agencies, two universities, 10 non-profit organizations, three consulting firms and one mining corporation, as well as private stakeholders. The purpose of the survey was to: 1) identify current wetland projects; 2) evaluate both the short-term and long-term funding and informational needs; and 3) to establish priorities in developing a long-term plan and help define the sequence for development of program elements. Based on the stakeholder survey results, as well as the recognition that sustainable funding is imperative to the creation of long-term objectives and actions, this WPP will initially focus on three core program elements: **Monitoring and Assessment, Voluntary Restoration and Protection, and Sustainable Financing**. The goal of this WPP is to identify how resources and planning activities will be prioritized over the next six years. Specifically, this WPP seeks to integrate wetland research and management, monitoring and assessment, and protection and restoration projects occurring across the state to insure programs are complimentary, inform resource investments, and allow managers to understand and weigh tradeoffs among potential actions. As such, this WPP is largely conceptual and will evolve as the community of stakeholders is fully engaged.

Overview

Nevada is the driest state in the nation and contains few discharges to surface waters of the state. Although wetlands and riparian areas cover a relatively small amount of land in Nevada, the benefits of these ecosystems are indispensable. For example, wetlands and springs provide critical habitat for the state's wildlife and aquatic species, many of which are wetland or spring dependent. Wetlands also provide numerous ecosystem services to Nevada's citizens, including: water supply and purification; regulation of floods, drought, and land degradation; ground water recharge; stream flow maintenance; soil formation and nutrient cycling; and recreational opportunities and tourism.

It is estimated that Nevada has lost (i.e., converted to another type of land cover or use) approximately 52% of its historic wetland acreage (Dahl 1990). Losses are primarily attributed to the diversion of streamflow for agricultural, municipal, and industrial uses; filling and draining wetlands for development; and stream channel erosion and modification. Nevada's remaining wetlands are threatened by continued surface water diversions and channel modification; discharges from irrigated farmland, abandoned mines, and urban stormwater containing high levels of salts and metallic compounds; excessive ground water withdrawal; incompatible grazing practices (both domestic livestock and wild horses and burros); non-native plant and aquatic animal invasions; incompatible recreation use (e.g., introduction of non-native bait species via fishing); and prolonged drought and other climate-related factors.

Different criteria are used by agencies to classify wetlands to reflect variation in statutory protection and management objectives. Here, the term wetland is intended to encompass all wet areas in Nevada that provide ecosystem services and habitat for plants, wildlife, and aquatic species, including: wet meadows, seeps and springs, playas, riparian areas, perennial streams, and intermittent and ephemeral washes. As such, the U. S. Fish and Wildlife Service definition of a wetland is representative of the range of wetland types applied by resource managers familiar with Nevada's wildlife, water, and water influenced vegetation resources.

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes, (2) the substrate is predominantly undrained hydric soil, and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979).

Currently, Nevada's only mechanism to regulate impacts to wetlands, such as dredge and fill and other activities, is through §401 certification under the Clean Water Act administered by the Nevada Department of Environmental Protection, Bureau of Water Quality Planning. Although projects requiring a federal permit must comply with the U. S. Army Corps of Engineers'

(ACOE) mandate of no-net-loss of wetlands, the state has no formal or informal goal regarding wetland loss or gain (ASWM 2015). Nevada lacks a formally recognized Wetland Program Plan (WPP) and does not regulate or promote wetland or stream buffer protections (ASWM 2015). In addition, the state relies solely on the ACOE for all wetland mitigation actions and lacks any formal wetland monitoring plan or centralized mapping and inventory database (ASWM 2015). Although voluntary wetland restoration is occurring across the state, this work is often comprised of decentralized state activities in partnership with other non-state partners.

Numerous research projects, mapping and assessment/inventories, and voluntary restoration projects have been conducted across the state by various universities, state and federal agencies, and non-profit organizations. Unfortunately, no single agency or group exists to keep track of the locations and types of wetland projects that are underway. The decentralization of such data has made it difficult for wetland researchers and land managers to quantify and integrate knowledge related to succession, climate change, and human alteration. This has led to significant information gaps regarding the regional distribution and trends of wetland habitats across the state.

Plan Development

The purpose of a WPP is to develop and implement effective and efficient broad-based actions for wetland conservation, restoration, and management, including assessment and monitoring (ASWM 2013). The development of a statewide WPP promotes stronger partnerships among stakeholders by identifying shared goals and preventing duplication of efforts, reducing competition for limited resources, leveraging funding and increasing spending efficiency, building new alliances, and encouraging creative problem solving (ASWM 2013). In 2010, the Nevada Natural Heritage Program (NNHP) was awarded a U. S. Environmental Protection Agency (EPA) Region 9 Wetland Program Development Grant (WPDG) to formulate strategies for improving the effectiveness of protecting and restoring Nevada's wetland resources.

The complexity of wetland management and protection within the state necessitates close collaboration between state and federal agencies, local governments, non-profit organizations and other public and private stakeholders. In January of 2016, NNHP staff sent a WPP stakeholder survey to 77 individuals known to have experience and knowledge of wetland resources in Nevada. Survey recipients represented 16 state and federal agencies, three local government or tribal agencies, two universities, 10 non-profit organizations, three consulting firms and one mining corporation, as well as private stakeholders. In addition, NNHP staff attended the Nevada Waterfowl Association's Waterbird Symposium in Fallon, NV in March 2016, during which the WPP stakeholder survey was made available to any additional participants that chose to respond.

The purpose of the survey was to: 1) identify current wetland projects; 2) evaluate both the short-term and long-term funding and informational needs; and 3) to establish priorities in

developing a long-term plan and help define the sequence for development of program elements. Because the structure of this WPP is based on the EPA's Core Elements Framework, a prioritization process was used to identify the most important elements for initial focus. Survey respondents were asked to rank the following four EPA Core Elements:

- Assessment and Monitoring (including classification, mapping, and inventory)
- Regulation
- Water Quality Standards for Wetlands
- Voluntary Restoration and Protection (including management, maintenance, enhancement, creation, and water quality improvement)

Seventy-nine percent of the initial survey recipients and 15 symposium attendees responded to one or more survey questions (see Appendix beginning on page 12 for survey results). Approximately 88% of respondents indicated that their current work involves wetlands in the state. Over half of the respondents indicated that they lack adequate funding to effectively pursue wetland projects that they want to do. Monitoring and Assessment was ranked as the highest core element priority, and Voluntary Restoration and Protection ranked second. Survey respondents indicated considerably less support for the Regulation and Water Quality Standards for Wetlands Core Elements. Approximately 62% of respondents believe that it is very important for Nevada to have a statewide wetland database. Approximately 80% of respondents are willing to be engaged in the WPP development process, from reviewing drafts of the WPP to providing input on objectives and activities, indicating that they are invested in this topic and consider this an important step for the state. Additionally, a number of ongoing wetland mapping projects previously unknown to NNHP staff were identified through the stakeholder survey.

Equally important for creation of a strong, adoptable WPP is that it integrates or builds off of existing plans related to wetland and riparian habitats. This WPP seeks to integrate with existing plans including:

- Nevada Wildlife Action Plan (Wildlife Action Plan Team 2012)
- Nevada Greater Sage-Grouse Conservation Plan (SETT 2014)
- Nevada Wetlands Priority Conservation Plan (NNHP 2006)
- Nevada Priority Wetlands Inventory 2007 (NNHP 2008)
- Nevada Springs Conservation Plan (Abele 2011)
- Coordinated Implementation Plan for Bird Conservation in Nevada (IWJV 2005)
- Nevada Comprehensive Bird Conservation Plan v.1 (GBBO 2010)

Plan Focus and Goal

Based on the stakeholder survey results, as well as the recognition that sustainable funding is imperative to the creation of long-term objectives and actions, this WPP will initially focus on three core program elements: **Monitoring and Assessment, Voluntary Restoration and Protection, and Sustainable Financing.** The goal of this WPP is to identify how resources and

planning activities will be prioritized over the next six years. Specifically, this WPP seeks to integrate wetland research and management, monitoring and assessment, and protection and restoration projects occurring across the state to insure programs are complimentary, inform resource investments, and allow managers to understand and weigh tradeoffs among potential actions. As such, this WPP is largely conceptual and will evolve as the community of stakeholders is fully engaged. Additional program core elements may be added as needed in future WPPs.

Foundational to the implementation of this WPP will be the creation of a wetland technical working group made up of stakeholders from across the state. The purpose of the group will be to identify and refine objectives that are most important to achieving the long-term goals of future state WPPs. The technical group will define a suite of research and management actions for each objective wherein each significant action is measureable, monitored, and subject to further refinement.

The strategic directions outlined below address each of three core program elements and are subject to refinement via the creation of a wetland technical working group. These action items will take place during the period covered by this plan (2017-2022). An annual review with the EPA will take place to discuss the progress of the WPPs actions and activities, determine the need for any assistance from the EPA, and discuss any adjustments that the WPP may need.

Core Element 1: Monitoring and Assessment

Goal: Develop a monitoring and assessment strategy consistent with the *Elements of a State Water Monitoring and Assessment Program for Wetlands* (EPA 2006) to characterize existing and historic wetlands in the state and provide an understanding of the function and condition of those wetlands to enable stakeholders to make informed management decisions.

Objective 1: Clearly define Nevada’s monitoring and assessment goals.

Action 1a: Establish a wetland technical working group comprised of interested stakeholders and relevant partners.

Action initiated: 2017

Activities:

- Engage and coordinate with stakeholders identified from NNHP scoping survey.
- Develop and define wetland monitoring objectives consistent with the needs of researchers, resource managers, and other stakeholders.
- Compile known sources of wetland-related data. Establish a data management and storage protocol.

- Schedule regular meetings of stakeholders to provide momentum to move the WPP forward. Assign tasks and follow-up on progress to assess if goals and objectives are being met.

Objective 2: Develop a consistent statewide wetland monitoring and assessment approach.

Action 2a: Build upon current statewide monitoring and assessment efforts while incorporating climate change monitoring and assessment tools and data sets.

Action initiated: 2018

Activities:

- Collect and analyze existing wetland data and information related to the type and condition of Nevada’s wetland and riparian habitats.
- Identify and define the types of wetland sampling designs used in past and present wetland classification and mapping projects. Determine which sampling strategies are most effective and revise future projects accordingly.

Action 2b: Explore feasibility of developing the EPA’s three-tiered framework for monitoring and assessing wetlands across the state (landscape-based approach; rapid assessments; and intensive quantitative assessments).

Action initiated: 2018

Activities:

- Explore phased wetland mapping efforts and development of Level 1 landscape assessments.

Objective 3: Create a current statewide wetland database which tracks both monitoring and assessment, and restoration and protection projects (similar to California’s EcoAtlas¹ and the University of Arizona’s Desert Flows Database²) to provide resource managers and researchers with relevant information to assess the condition of wetland resources and apply appropriate management, restoration efforts, and funding to maintain and enhance aquatic ecosystems in Nevada.

Action 3a: Support projects which utilize currently available computational tools and the increased availability of high-resolution remotely sensed imagery to create Geographic Information System (GIS)-derived spatially explicit maps which allow for greater quantification of the environmental characteristics of wetlands and wet meadows (e.g., soil, vegetation, and

¹ <http://www.ecoatlas.org/>

² <http://wrrc.arizona.edu/desertflowsdata>

hydrologic conditions) important to Greater Sage-Grouse (*Centrocercus urophasianus*) and other fish and wildlife species.

Action initiated: 2018

Activities:

- Convert and incorporate existing springs and wetlands data (such as Sada and Lutz 2016) compiled from surveys since the 1980s into a geo-spatial database.
- Use data gathered from technologically advanced mapping projects to track trends in wetland loss or gain, cumulative impacts of regional land-use, restoration and conservation success or failure, and other global changes over time.
- Develop statewide data sharing agreements among stakeholders to maintain the aggregation and sharing of wetland data.

Core Element 2: Voluntary Restoration and Protection

Goal: Maintain and increase healthy wetland ecosystems in Nevada through voluntary restoration and protection.

Objective 1: Clearly define Nevada's wetland restoration and protection goals.

Action 1a: Establish goals that are consistent or compatible across relevant agencies and stakeholders.

Action initiated: 2019

Activities:

- Coordinate with relevant agencies and stakeholders to develop a wetland technical working group that meets regularly to enhance statewide collaboration, information sharing, and coordination of restoration and protection efforts.
- Set wetland restoration and protection goals based on previous state plans which identify priority wetlands and springs, as well as stakeholder objectives and other available information.

Action 1b: Consider watershed planning, plant and wildlife habitat, and other objectives when defining goals and selecting restoration/protection sites.

Action initiated: 2019

Activities:

- Identify rare, vulnerable, or important wetlands and prioritize for restoration and/or protection.
- Support the advancement and integration of technologically advanced mapping methods which create spatially-explicit maps that quantitatively define the current environmental characteristics of wetlands across the state. Apply this information to identify and prioritize restorable wetlands at the landscape scale.
- Integrate restoration/protection efforts on a watershed or landscape scale with existing modeling efforts which predict potential changes in wetland/springs distribution and condition based on climate-driven variation in temperature and precipitation patterns.
- Share priorities and data with other organizations involved in wetland protection and restoration or water quality planning.

Action 1c: Provide guidance on: 1) recommended restoration approaches and management techniques based on different scenarios, 2) consistent ways to measure performance for each wetland type, and 3) a monitoring format that ensures statewide consistency and ease of project data entry and analysis.

Action initiated: 2020

Activities:

- Research relevant quantitative approaches to develop spatially explicit support tools for the planning of restoration and protection of Nevada's wetlands.
- Inform restoration partners about relevant quantitative approaches that may be used to inform the creation of guidance techniques.
- Develop and/or adopt restoration and management guidance specific to wetland types and location (e.g., urban vs. rural; springs vs. riparian).
- Establish consistent ways to measure restoration success (e.g., functional and/or condition indicators), including performance standards based on reference wetlands.
- Encourage restoration outcomes that recreate natural self-sustaining systems and reduce the need for ongoing management, and consider overarching topics such as drought and climate change.
- Verify restoration techniques with site visits, compare to reference sites, and adapt as necessary.

- Train restoration partners to use guidance techniques to ensure statewide consistency.

Objective 2: Centralized tracking of all wetland restoration and protection sites/projects.

Action 2a: Develop a statewide entity and mechanism to track wetland restoration and protection sites/projects.

Action initiated: 2018

Activities:

- Engage stakeholders to assist in wetland database planning.
- Gather baseline information on wetland location, class, condition, and function.

Action 2b: Track restoration/protection projects.

Action initiated: 2018

Activities:

- Develop a tracking database for restoration and protection sites.
- Conduct outreach to gather restoration and protection site data.

Core Element 3: Sustainable Financing

Goal: Provide stable funding sources to support program long-term.

Objective 1: Identify and pursue opportunities for program funding.

Action 1a: Establish collaborative partnerships to leverage funding opportunities.

Action initiated: 2017

Activities:

- Identify current and proposed wetland projects that can be funded by WPDGs, North American Wetlands Conservation Act Grants, and other funding sources.
- Identify funding sources that will support and house a centralized wetland database for the state.

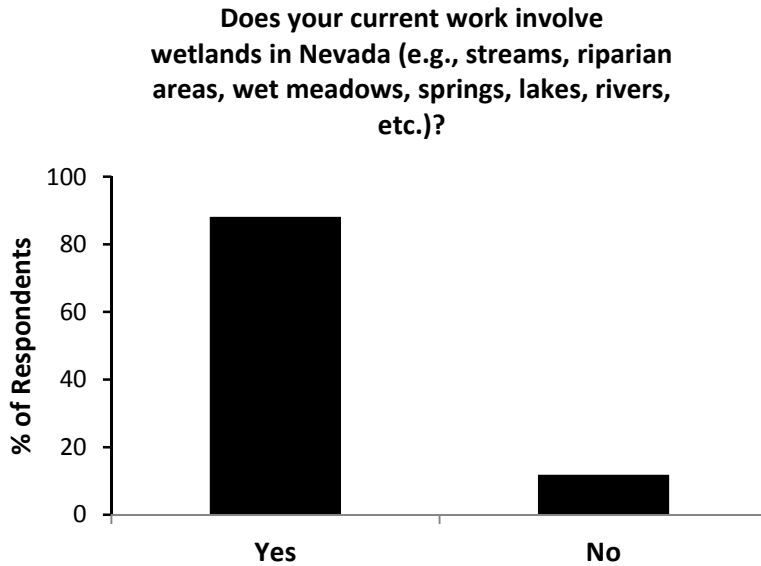
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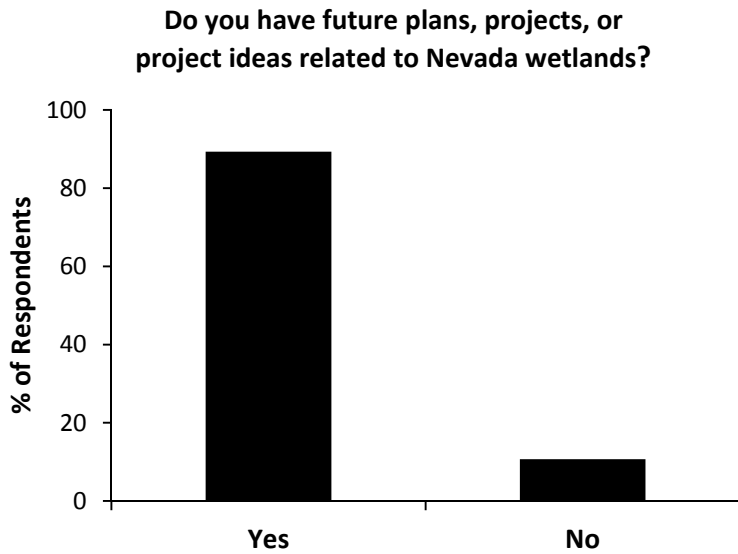
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Appendix: Wetland Program Plan Survey Questions and Responses

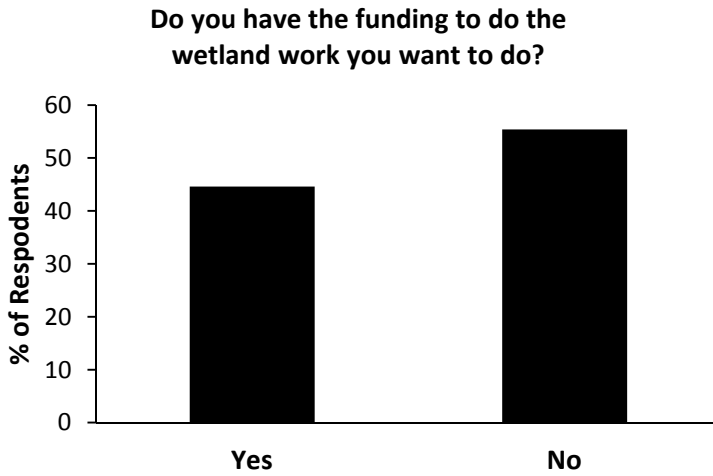
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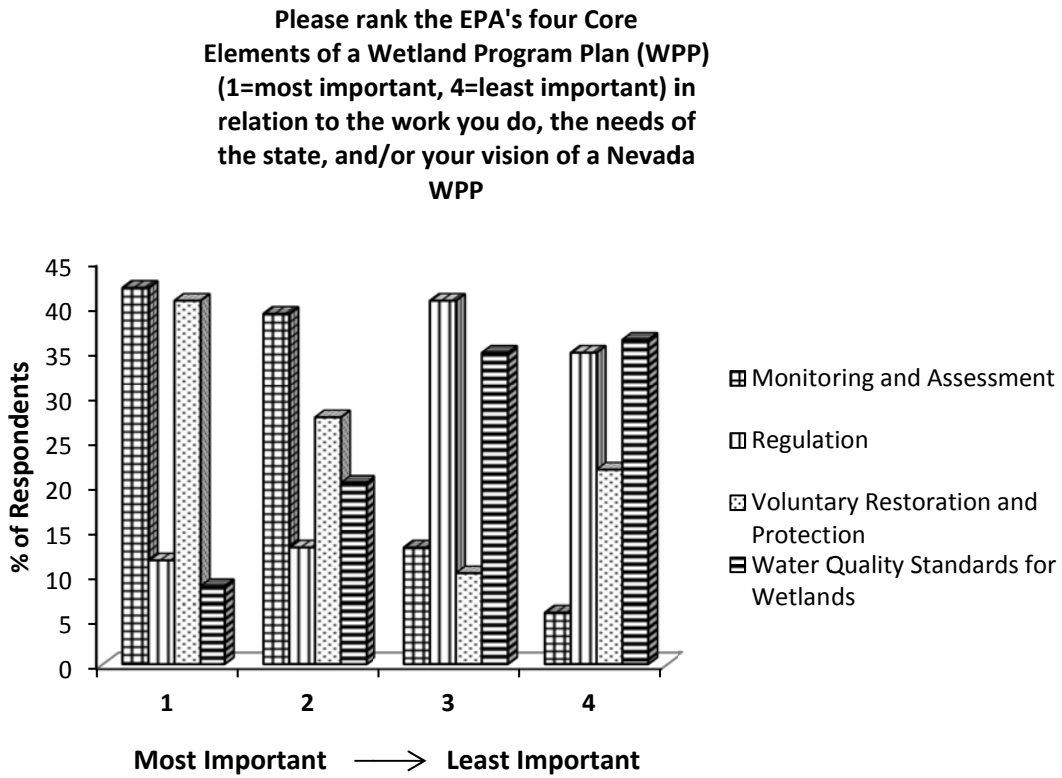
Question 2:



Question 3:

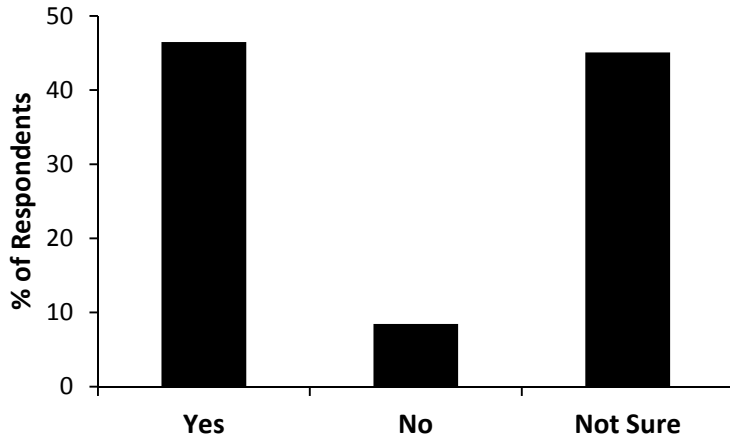


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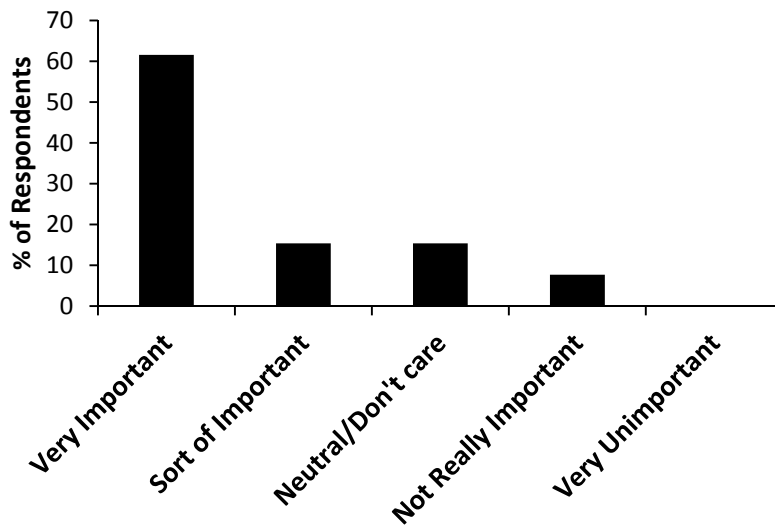
Question 5:

Once Nevada has a formal Wetland Program Plan in place, would you use it to seek EPA funding for projects?

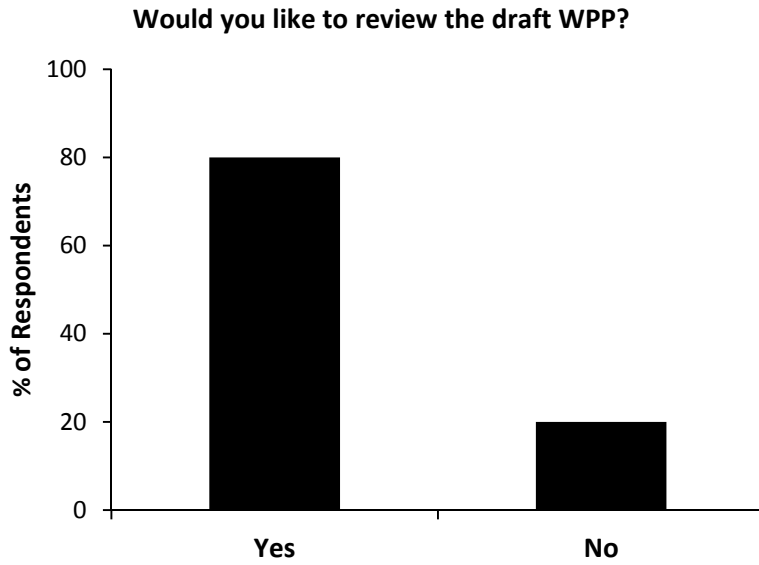


Question 6:

Please rate how important you think it is for Nevada to have a statewide wetland database



Question 7:



Question 8:

