

CONSERVATION STRATEGIES FOR NEVADA’S 22 KEY HABITATS AND THEIR ASSOCIATED WILDLIFE

The Nevada Wildlife Action Plan approach to wildlife conservation is based on 22 individual key habitat conservation strategies. Each of the 22 key habitat conservation strategies provides the key habitat’s particular importance to wildlife and each key habitat’s associated Species of Conservation Priority organized by the important features of the habitat type that most influence the presence of the species (“key habitat elements important to wildlife”). Included in this section are the predicted effects of climate change and wildlife responses to those effects, each key habitat’s current condition, current land uses, and current problems in meeting its full contribution to statewide comprehensive wildlife conservation. A Conservation Strategy has been designed for each key habitat, consisting of goals written in terms of desired landscape conditions, directional objectives (increase, decrease, maintain) that are measurable with respect to their overall trend by the end of the planning period, and suggested management actions that could significantly contribute toward the movement of the objectives into the desired direction. While most management actions are habitat-based, some management actions are non-habitat-based and refer to a single species or sometimes groups of species. While species-based actions could occur across a variety of habitat types, we attempted to present actions in the habitat type that is key to their implementation to avoid redundancy in the text. In addition, each strategy identifies focal areas for conservation action that are based on existing plans and expert consultation.

Once the threats to wildlife conservation posed by climate change and other agents of change were identified, strategies to reverse or mitigate the effects of all the threats including climate change were solicited from technical expert groups, taken from the 2005 Plan, other conservation plans, or the literature wherever possible. The strategies, activities, treatments, prescriptions, programs, and initiatives were often unchanged from the 2005 Plan for the species persisting on the priority list from 2005. A feature of the TNC habitat analysis was the gathering of regional ecological restoration focus groups to construct restoration, remedial, and preventive prescriptions for action specific to their own regions based on their own expertise and experience.

After the basic prescriptive approaches were identified, the Revision Team strove to set quantified, measurable objectives to set the progress marks for the applications of those prescriptions. Where ecological departure of an ecological system (biophysical setting) was of major concern and had been quantified for the 50-year period of analysis, objectives aimed at reversing, stabilizing, or minimizing the rate of ecological departure of the ecological system were developed for the immediate 10-year period following approval of the Revision (2012-2022). A general finding of the climate change projections was that the period between 40 and 50 years from now would witness the greatest increment of change toward the 50-year projected outcome, and often the first 10-year period (that relevant to this revision) would witness the least. Setting up the monitoring framework to measure climate change effects was much more the need during this first 10-year period, and sometimes in terms of actually observing physical change on the landscape.

As with terrestrial species, strategies, activities, treatments, prescriptions, programs, and initiatives were largely unchanged from those developed for the 2005 Plan for aquatic species carried forward from the 2005 priority list, and new species added from the current analysis generally could be grouped with a species or set of species previously prioritized. The level of degradation of aquatic habitats supporting priority aquatic species in Nevada remains substantial because of both physical alteration and the presence of undesirable non-native species, and specific substantive threats to these habitats identified in the 2005 plan such as future groundwater development and invasive species remain largely unabated. To the extent that potential climate change effects identified in the analysis such as increased thermal input from air temperature rise and altered streamflow regimes resultant from temporal changes in precipitation and modified runoff patterns will modify aquatic

habitat quality for priority aquatic species, these will be modifiers that to some extent will just amplify the impacts of existing threats. For this reason in many cases predicted climate change inputs did not substantially alter existing proposed actions, prescriptions and conservation targets, but place increased emphasis on the importance of those targets and prescriptions because their effective implementation generally will increase the resiliency of aquatic systems in the face of projected climate related effects.

The Nevada WAP Team addressed climate change within the terrestrial key habitats under the following headings: “Predicted Climate Change Effects,” “Possible Wildlife Responses to Climate Change,” and “Taking Prescriptive Action.” However, the aquatic key habitats (e.g., Warm Desert Riparian, Springs and Springbrooks, Marshes) only address “Predicted Climate Change Effects,” and “Possible Wildlife Responses to Climate Change”. Because the available TNC climate change analysis focused primarily on “ecological departure” of vegetative systems and associated changes to native terrestrial habitats, it provided limited utility for assessing changes to aquatic systems and associated effects on resident native aquatic species, particularly fishes. For a number of reasons it was not possible to develop more sophisticated modeling tools for identifying aquatic system effects at a detailed level, and a relatively coarse-filter approach was used to evaluate predicted climate change effects. Therefore, the heading and discussion in the “Taking Prescriptive Action” under terrestrial key habitats was not feasible for development in the aquatic key habitats.

Recognizing the current limitations on developing adequate and comprehensive analysis of predicted climate change effects on many of Nevada’s aquatic systems and associated aquatic species, primarily due to the absence of necessary data sets and climate change models or analysis applicable to aquatic systems at a useful scale and resolution, we will continue to work with key conservation partners to identify suitable tools that will allow more detailed and comprehensive analysis of those potential aquatic system effects. As those tools are identified further analysis will be performed to refine our understanding of predicted climate change effects on key aquatic habitats and associated fishes and other native aquatic species of concern, informing the development of management strategies for those habitats and species and active implementation of appropriate prescriptive actions.