STRATEGY 4

Enact policies to prevent future groundwater withdrawals that could negatively affect GDEs

Why this strategy is needed

To protect GDEs and the services they provide for future generations, policies are needed that guide GDE management going forward. Within NV water law, there are only a few protections for water for wildlife, and even fewer for ecosystems. Water for wildlife is a beneficial use in limited circumstances, agricultural water rights can be temporarily used for wildlife purposes (§NRS 533.0243), a de minimus collection of precipitation for wildlife guzzlers is allowed (§NRS 533.027) and interbasin transfers of water must be "environmentally sound" in the basin of origin (§NRS 533.370.3(c)), but environmentally sound is not defined. The State Engineer may require an environmental study (§NRS 533.368) before making a decision on an application, but this is discretionary. The State Engineer can approve temporary applications for environmental permits to avoid pollution or contamination of a water source (§NRS 533.437, §NRS 533.4373, §NRS 533.4375, §NRS 533.4377). Also, the State Engineer makes decisions in the public interest (§NRS 533.345, §NRS 533.370.2, §NRS 533.371, §NRS 533.372, §NRS 533.375, §NRS 533.436.4, §NRS 533.4375, §NRS 533.500, §NRS 533.504, and §NRS 534.320), but how ecosystems fit into the public interest is not described in statute. Over 70% of groundwater-dependent wetlands, phreatophyte communities, and lakes and playas are at high risk for threats from potential groundwater withdrawals (Saito et al. 2022a), which can lead these GDEs to transition to more fire-prone systems with less ecological value (Provencher et al. 2020), so regulations and laws are needed to reduce the threat of groundwater withdrawals that could impact GDEs.

Examples of actions associated with this strategy

- Enable voluntary permanent retirement of groundwater rights, especially for over-pumped or over-appropriated hydrographic areas
- Use conservation easements and land withdrawals to protect areas with important GDEs.
- Incorporate considerations for GDEs (e.g., environmental rights for groundwater that allow for local protections of GDEs or groundwater withdrawals for ecological needs [Nelson 2022]) in Code of Federal Regulations and Nevada water law

Challenges and considerations

Political will and agreement among stakeholders will be needed to make policy changes to prevent future groundwater withdrawals near GDEs and it may be hard to get buy-in from senior water right holders if potential actions might appear to challenge prior appropriation. However, there could be trade-offs between economic growth and conservation of GDEs that may be alleviated through incentives or grant programs. Because of the nature of groundwater and uncertainty in its dynamics, identifying the best places to protect from future groundwater withdrawals could be challenging. For example, more information on short versus long groundwater flow paths and how the dynamics of pumping and water available to GDEs interact is important at the local and regional levels to make decisions. It will also be hard to measure success of this strategy since it is aimed at preventing future withdrawals. A framework to assist decision-makers when justifying a policy that limits future groundwater withdrawals could be useful.

Qualitative assessment of the effectiveness of Strategy 4's ability to reduce the impacts of each GDE stressor and threat.

STRESSOR RISK	EFFECTIVENESS
S1: Groundwater pumping status	*Highly Likely*
S2: Declining groundwater level trends	*Somewhat Likely*
S3: Current climate	
S4: Ungulate impacts	
S5: Non-native species presence	
S6: Surface diversions	
S7: Urbanization	
THREAT RISK	**EFFECTIVENESS**
T1: Appropriation status	*Highly Likely*
T2: Potential withdrawal proximity to GDEs	*Highly Likely*
T3: Future climate	*Somewhat Likely*
T4: Non-native species spread	
T5: Future urbanization	*Somewhat Likely*