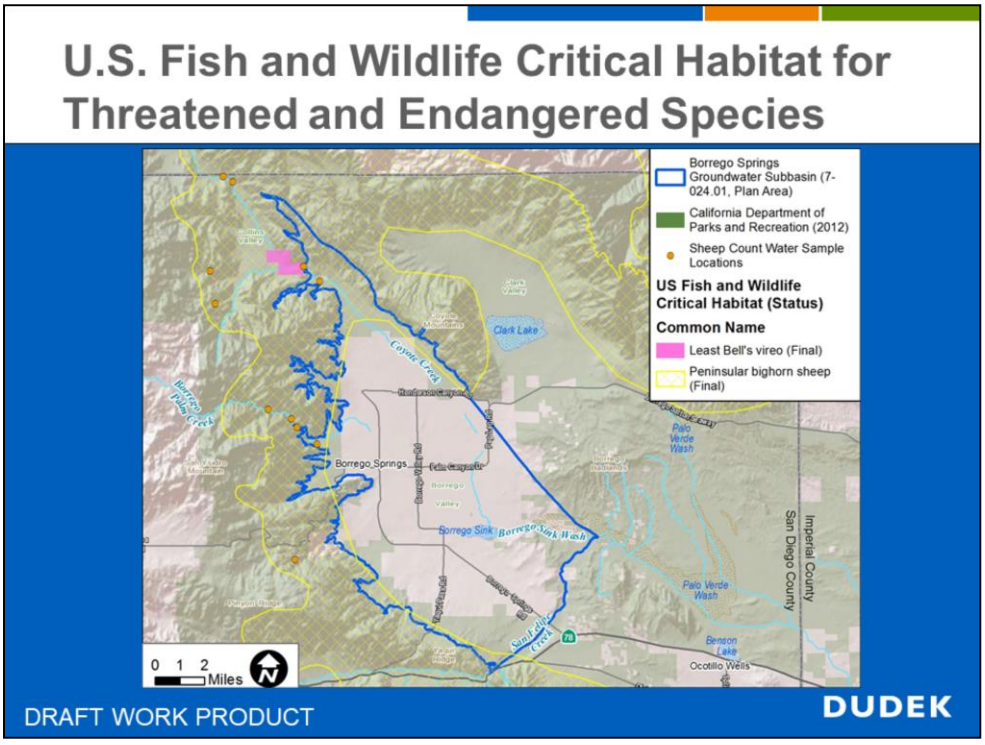
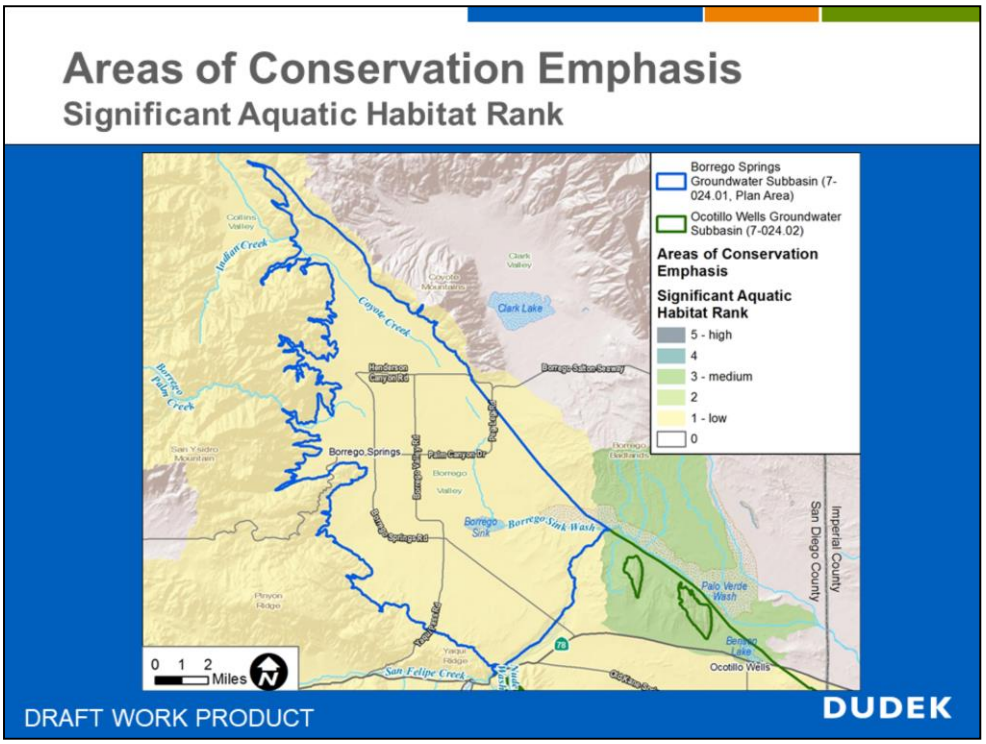
Based on information and datasets provided by the California Department of Fish and Wildlife, Water Branch, the Core Team will present an informational update on Groundwater Dependent Ecosystems (GDEs).

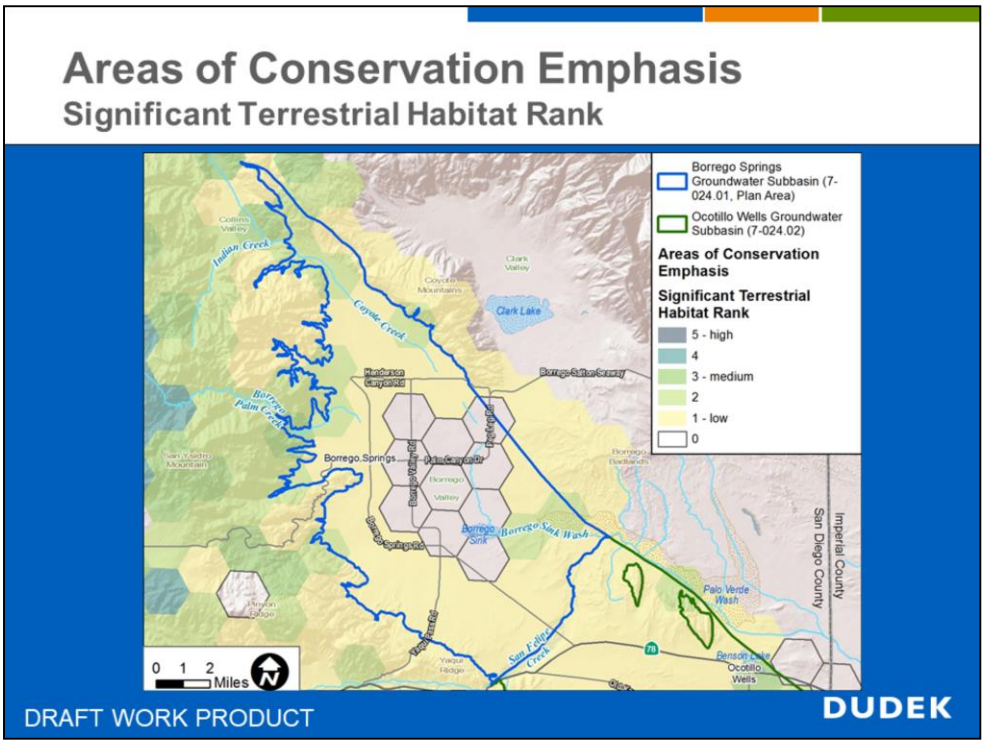


It is important to assess the ecological condition of potential Groundwater Dependent Ecosystems (GDEs) and determine whether legally protected species or ecologically rich communities are present. The Environmental Conservation Online System (ECOS) contains spatial data of critical habitat for threatened and endangered species. Critical habitat for Peninsular bighorn sheep is identified in the Borrego Springs Groundwater Subbasin. Critical habitat for Least Bell's vireo is also identified in the vicinity of the Subbasin near where Coyote Creek enters the Subbasin. Potential effects to these critical habitats must be analyzed along with the endangered species themselves during the California Environmental Quality Act (CEQA) review of the Groundwater Sustainability Plan (GSP) Projects and Management Actions. U.S. Fish and Wildlife Information for Planning and Consultation (IPaC) lists the other endangered species in the larger contributing watershed to the Subbasin: 2 mammals, 24 migratory birds, 1 reptile, 2 amphibians, 2 fishes, 2 insects, and flowering plants (U.S Fish & Wildlife Service 2018). An official consolation based on the CEQA project description is required with the resource agencies in order to evaluate potential impacts, get an official species list, and make species determinations. Also, depicted are the locations of surface water quality samples collected during the June 29 to July 1st Peninsular Bighorn Sheep count. The samples were collected by volunteers and analyzed by the

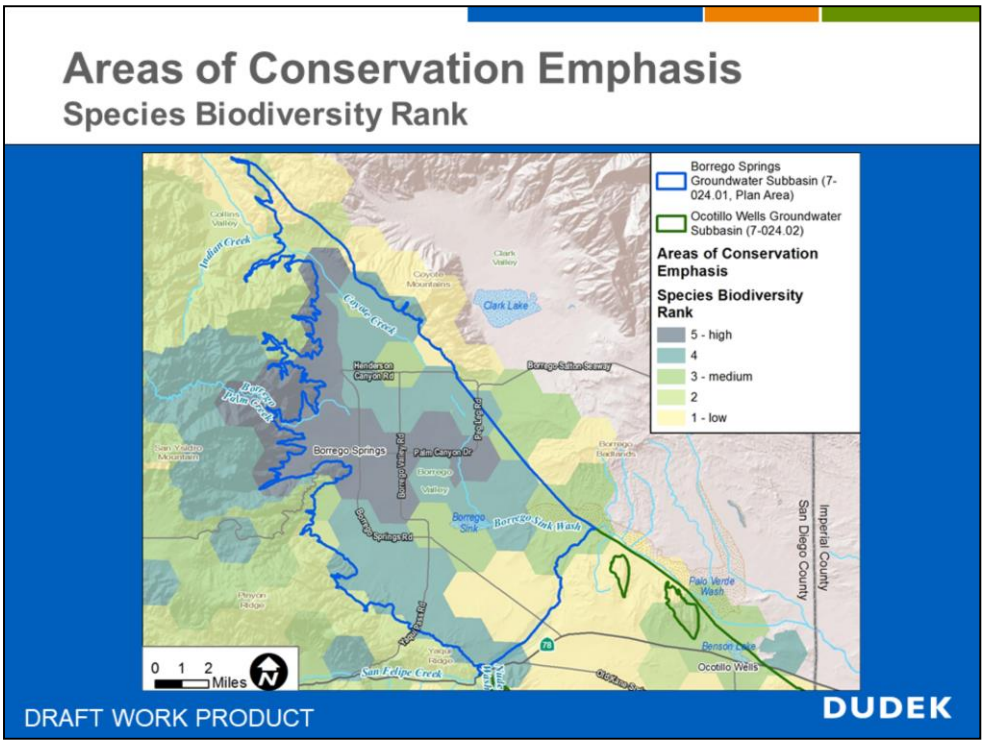
Borrego Waster District with data compiled and reported by John Peterson.



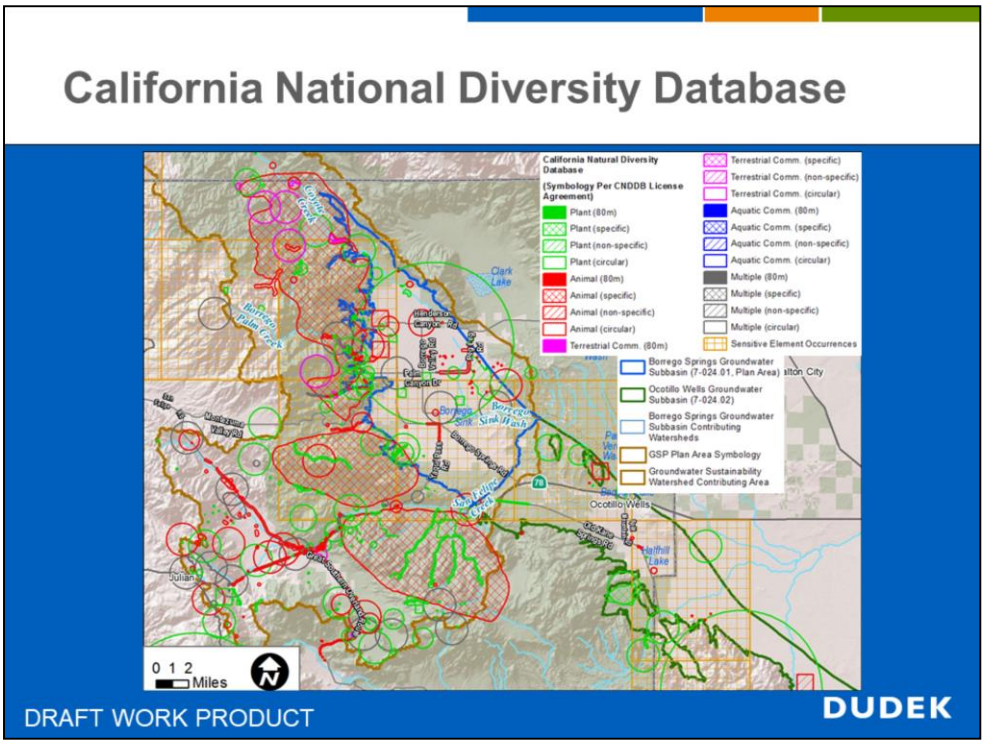
The Areas of Conservation Emphasis (ACE) is a California Department of Fish & Wildlife non-regulatory tool that brings together the best available map-based data in California to depict biodiversity, significant habitats, connectivity, climate change resilience, and other datasets for use in conservation planning. ACE project contains spatial data on native species richness, rarity, endemism, and sensitive habitats for six taxonomic groups: birds, fish, amphibians, plants, mammals, and reptiles. Information on the location of four sensitive habitat types (i.e., wetlands, riparian habitat, rare upland natural communities, and high-value salmonid habitat) are also summarized. The ACE dataset is available statewide based on watersheds using hydrological units at the 12-digit code level (HUC12) for aquatic habitat. The Borrego Valley HUC12 sub-watershed has a low Significant Aquatic Habitat Rank. Additional field reconnaissance and mapping may be required to better delineate aquatic habitats in the Subbasin as part of the CEQA review or during GSP implementation.



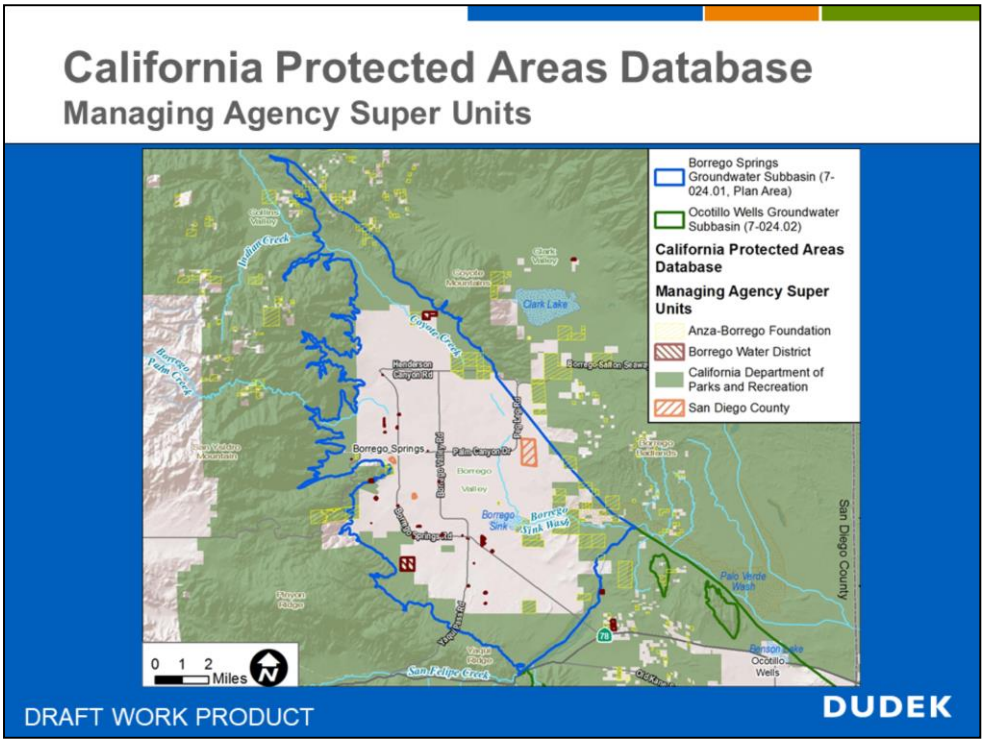
The ACE dataset is available statewide at a 2.5-square-mile hexagon grid for terrestrial habitat. The color ramp has been coded at the USDA Ecoregion level with each color approximate to the 20th percentile of land area in the Colorado Desert Ecoregion. The developed areas of Borrego Springs have a terrestrial habitat rank of 0. Moving outward from the developed area of Borrego Springs the rank increases to higher terrestrial habitat values. Additional field reconnaissance and mapping may be required to better delineate terrestrial habitats in the Subbasin as part of the CEQA review or during GSP implementation.



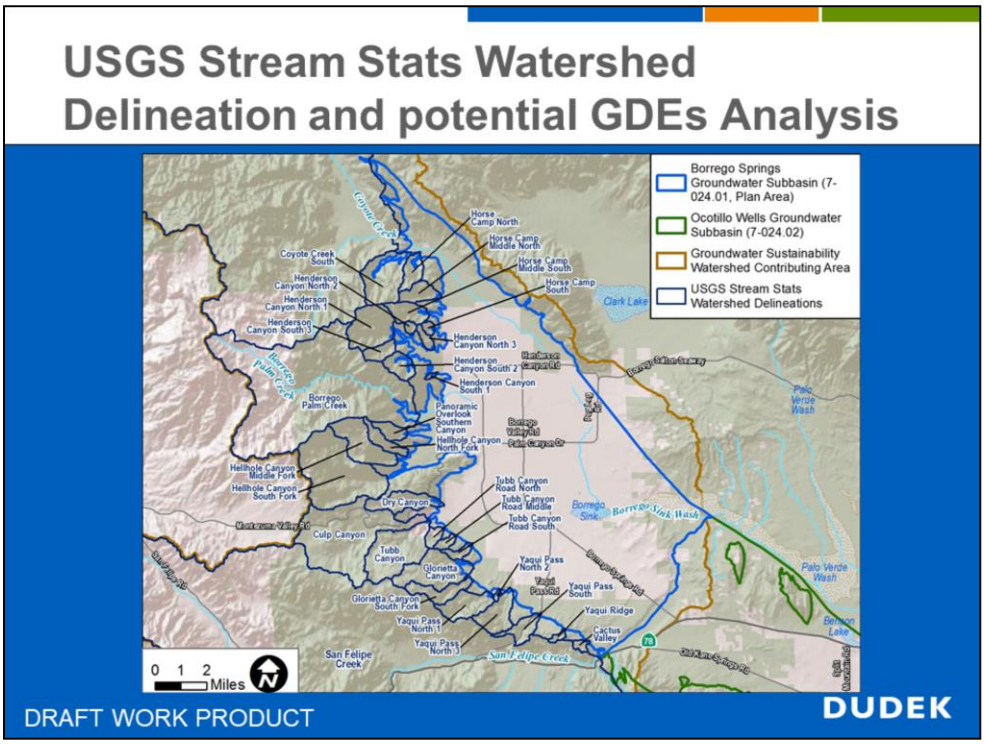
Species Biodiversity Summaries combine the three measures of biodiversity developed for ACE into a single metric. These three measures include: 1) native species richness; 2) rare species richness; and, 3) irreplaceability. Much of western flank of the Subbasin is ranked as high species biodiversity (grey hexagons). Interestingly, the Species Biodiversity Rank seems to conflict with the previous Significant Terrestrial Habitat Rank for the hexagons located in the central portion of the Subbasin. Additional analysis is required to determine why there is a discrepancy. Additional field reconnaissance and mapping may be required to better delineate species biodiversity in the Subbasin as part of the CEQA review or during GSP implementation.



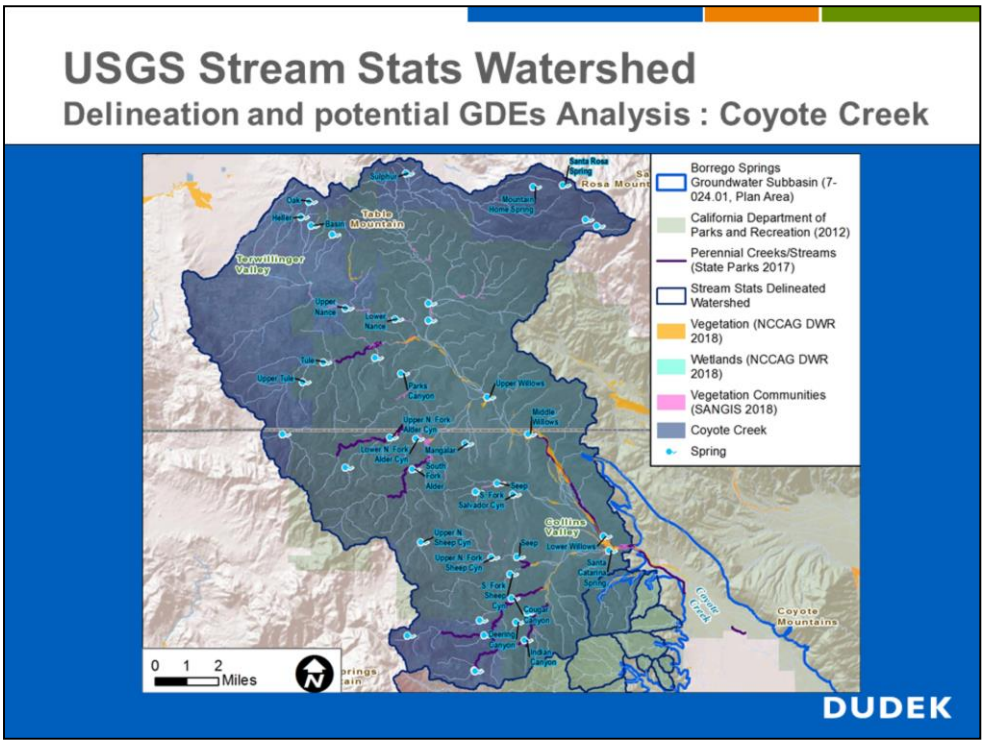
The California National Diversity Database (CNDDB) or California Special Status Species contains text and spatial information on California's special status species (rare plants and animals). It is a positive detection database. Records in the database exist only where species were detected. This means there is a bias in the database towards locations that have more survey work. Also, the database is proprietary and shall be displayed at such a scale (no larger than a scale of 1:350,000), or in such a way that the viewers/users cannot determine exact location information of the elements mapped in the system. Additional field surveys may be required to better delineate terrestrial and aquatic biodiversity in the Subbasin as part of the CEQA review or during GSP implementation.



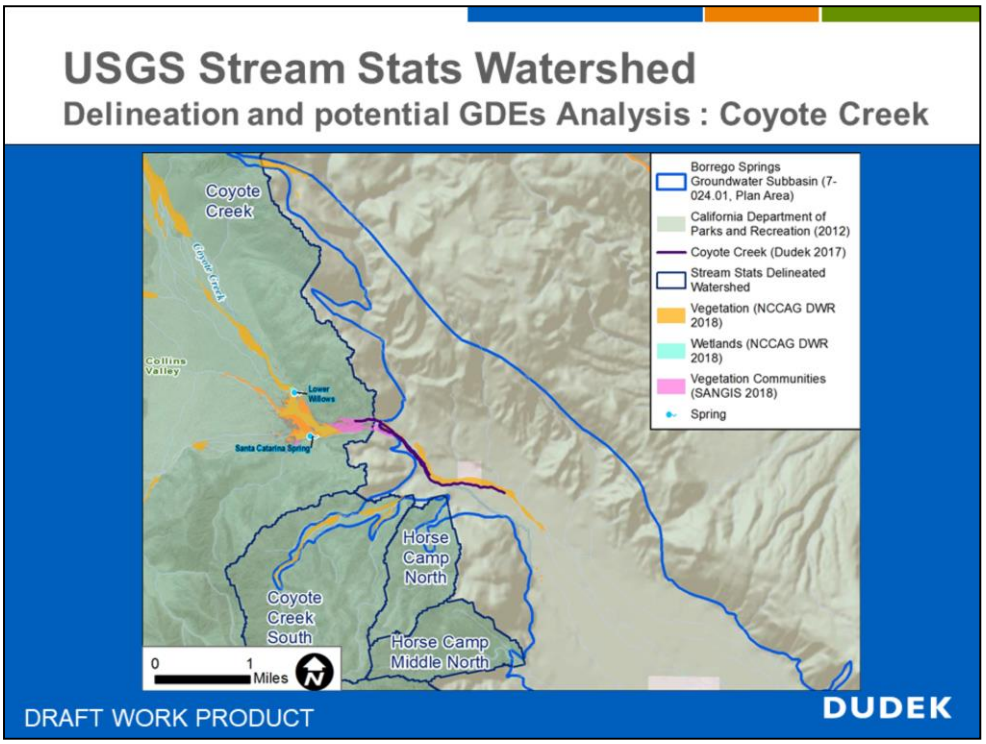
The California Protected Areas Database (CPAD) contains GIS data about lands that are owned in fee and protected for open space purposes by over 1,000 public agencies or non-profit organizations. This dataset shows that the majority of lands surrounding Borrego Springs are protected areas managed by the Anza Borrego Desert State Park.



All of the major watersheds on the western edge of the Subbasin have been delineated using USGS' StreamStats program. A map book for the watersheds has been developed. Each map depicts The Natural Communities [Commonly Associated with Groundwater] vegetation, wetlands, vegetation communities commonly associated with groundwater, perennial creeks/streams, springs and other hydrologic features.



As an example, this is the map for the Coyote Creek watershed delineated by USGS' StreamStats. The mapped location of springs from multiple datasets including the Anza Borrego Desert State Park is depicted. The perennial and ephemeral creeks and streams are depicted using National Hydrography Dataset (NHD). The GSA team is mapping the perennial reach of Coyote Creek semi-annually in the fall and spring. Also depicted is the Natural Communities [Commonly Associated with Groundwater], County vegetation communities associated with primarily riparian habitat and color infrared aerial photography to analyze locations of potential groundwater dependent vegetation.



The multiple data can be viewed in a mapper by the GSA and agencies to further evaluate potential groundwater dependent ecosystems.

GDEs Next Steps

- Continue to evaluate potential GDEs.
- Coordinate with local, state and federal agencies, and stakeholders to develop an approach to monitor potential groundwater dependent ecosystems (GDEs).

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Questions