

# GMP Dynamic Sourcebook, version 2.1 - Appendix E: Foundation Statements

## E.1 Examples of How All Elements of a Foundation Statement Interrelate

### Petrified Forest National Park Foundation Statement

<b>Ecosystem: Recovering Native Grassland of the Colorado Plateau and Riparian Areas</b>	
<b>Fundamental Resource/Value</b>	<ul style="list-style-type: none"> <li>• Diversity of flora and fauna, including shared characteristics of three ecological regions (Great Basin, Sonoran, Great Plains)</li> <li>• Ecological values — structure and composition, function, health, and recovery — owing to the lack of recent grazing relative to other areas of shortgrass prairie</li> <li>• Ephemeral water resources (washes, seeps and springs, tanks, tinajas, depressions) are critically important for flora and fauna</li> <li>• Riparian areas are critically important for refuge and habitat</li> </ul>
<b>Importance</b>	<ul style="list-style-type: none"> <li>• One of the best Arizona short grass, prairies, preserves habitats for a variety of flora and fauna for Colorado Plateau Region; not grazed</li> <li>• Refuge for several animals of concern such as, pronghorn, prairie dogs, milk snakes</li> <li>• Great Basin, Sonoran, Great Plains meet and diversity of flora and fauna.</li> <li>• Limited water resources are ephemeral and important to refuge and habitat (above).</li> </ul>
<b>Concerns and Opportunities</b>	<ul style="list-style-type: none"> <li>• Exotic species invasions, such as Tamarisk threaten the diversity of native plant communities.</li> <li>• Grazing on the park expansion lands alters native short grass prairie communities. Native grasslands could be restored on expansion lands. Restoration of grasslands could mask cultural sites.</li> <li>• Dumpsites, quarries, mines affect natural environments on park expansion lands.</li> <li>• Poaching affects wildlife.</li> <li>• Roads and fences on expansion lands may impede wildlife movements.</li> <li>• There are opportunities for black footed ferret restoration and prairie dogs protection. Expanding transportation corridors affect wildlife by further limiting or preventing movement. Opportunities include wildlife overpasses.</li> <li>• Nonnative elk which have been re-introduced into Arizona are moving into the park, which has not traditionally been elk habitat.</li> <li>• Increasing visitation and recreation demands could affect the grassland ecosystem.</li> <li>• A pronghorn herd is “trapped” between the interstate and the railroad, resulting in a biologically isolated herd.</li> <li>• There are no known federally listed threatened and endangered species or critical habitats within the park.</li> <li>• Sewage lagoons within the park provide an unnatural abundance of water. Wildlife has become dependent on man-made water guzzlers on expansion lands.</li> <li>• Seeps and springs are disappearing due to regional draw down and drought. Large-scale groundwater pumping occurs from the Salt River project, generating stations, which draw from aquifers that lie beneath the park.</li> <li>• Manmade structures and human use can accelerate erosion, cause channelization and gulying, affecting the ecosystem.</li> <li>• The Puerco River corridor has upstream impacts from a uranium mine. It is also a corridor for invasive exotic plants, such as Tamarisk. It has been determined to be eligible as a Wild and Scenic River. There are opportunities to restore the Puerco River corridor.</li> <li>• Outside of the park, there is an underground liquefied petroleum gas (LPG) storage facility that also involves brine used to displace the LPG. The facility operates under a permit from the Arizona Department of Environmental Quality, which monitors aquifers. ADEQ and NPS Geological Resources have found no significant hazards to park resources posed by the plant.</li> <li>• The park has a lack of professional biological staff technicians, wildlife biologists, or botanists.</li> <li>• There is a need for continued inventory and monitoring of biological resources</li> <li>• There is a lack of baseline data regarding water quality.</li> </ul>

<b>Ecosystem: Recovering Native Grassland of the Colorado Plateau and Riparian Areas</b>	
<b>Trends</b>	<ul style="list-style-type: none"> <li>• Recovery of grasslands</li> <li>• Disappearance of prairie dogs</li> <li>• Increased visitation – potential increased impacts</li> <li>• Exotic species invasions – increasing</li> <li>• Increase use of the transportation corridors</li> <li>• Development pressure – fractionation of habitats, disruption of migration patterns, demands for scarce water resources.</li> </ul>
<b>Stakeholder Interest</b>	<ul style="list-style-type: none"> <li>• AZ Game and Fish</li> <li>• Researchers/Universities/School groups</li> <li>• Local hunters</li> <li>• Adjacent property owners</li> <li>• Developers</li> <li>• BSNF/ADOT</li> <li>• Tribes</li> <li>• Communities/Counties</li> <li>• Visitors</li> <li>• Landowners within expansion lands have interest in continuing grazing</li> <li>• The concessioner will likely have interest in broadening visitor access and services.</li> <li>• The Bureau of Land Management and the State own lands within the expansion area, and have different missions that affect natural resources.</li> </ul>
<b>Relevant Laws and Regulations</b>	<ul style="list-style-type: none"> <li>• Organic Act</li> <li>• Lacey Act</li> <li>• Endangered Species Act</li> <li>• State Laws (i.e. hunting, water quality)</li> <li>• NPS Management Policies</li> <li>• Wildlife water</li> <li>• Mining Act</li> <li>• Clean Water Act</li> <li>• Wilderness Act</li> <li>• Grazing provision in legislation</li> <li>• EPA polices</li> <li>• National Environmental Policy Act</li> <li>• Wild and Scenic Rivers Act (Puerco River is eligible as a Scenic River)</li> </ul>
<b>General Law and Policy Guidance</b>	<ul style="list-style-type: none"> <li>• The park's ecosystem is health and resilient to stress. Management occurs at multiple levels (local, regional, continental, and global), depending on the need to protect and perpetuate ecological processes.</li> <li>• Hydrological processes are not critically affected by human intervention and water use. These processes sustain riparian and ephemeral ecosystems in good condition, unaffected to any significant extent by human interactions. Water quality contamination levels are low enough to preclude unacceptable stress on ecological systems or processes, or damage to their physical and biological components.</li> <li>• Native shortgrass prairie is restored and sustained to its normal extent, structure, and role in the park's ecological systems.</li> <li>• Nonnative, invasive species are absent in the park's ecosystems, or if present, are effectively controlled.</li> <li>• Disturbance regimes, such as fire, are restored or allowed to proceed unimpeded, taking into account the protection of people and property.</li> <li>• Disruption of ecological systems by NPS management actions or by human actions outside park boundaries are prevented or mitigated to the extent possible.</li> </ul>
<b>Management Direction within</b>	<ul style="list-style-type: none"> <li>• Continue participation in the NPS Natural Resource Challenge, a program under way to establish science-based management in parks. Petrified Forest National Park is part</li> </ul>

**Ecosystem: Recovering Native Grassland of the Colorado Plateau and Riparian Areas**

<b>Law and Policy</b>	<p>of the Southern Colorado Plateau network, which is charged with helping the parks carry out a vital signs monitoring program. Specific indicators and standards will continue to be developed. Extend the program to expansion lands.</p> <ul style="list-style-type: none"><li>• Inventory new park lands for threatened and endangered species and critical habitat.</li><li>• Determine the impacts of grazing on the shortgrass prairie ecosystem and strive to mitigate or eliminate those impacts and restore the prairie.</li><li>• Establish baseline information on groundwater levels and quality and determine the present human use and impact on hydrological systems. Work with agencies, local governments, residents, and others to prevent human activities from adversely affecting the hydrologic system.</li><li>• Inventory, map and monitor riparian areas and ephemeral water sources.</li><li>• Prepare and keep current a wildland fire management plan (with public involvement) that restores to the extent possible the ecological role of wildland fire as a disturbance regime, protects neighbors, and identifies appropriate actions in coordination with federal, state, and local agencies.</li><li>• Inventory man- made structures and modifications and remove any of them that do not contribute to the purposes and management of the park.</li><li>• Develop exotic plant species management area plans for the prevention and control of invasive plants.</li><li>• Identify those species known to have occupied the monument in the past. Evaluate the feasibility and advisability of reintroducing missing species, and removing those that are not a part of the past ecosystem.</li><li>• Identify wildlife movement routes and human impediments to movement. Develop mitigation measures and work with federal, state, and local entities and with private landowners and others to protect movement corridors.</li></ul>
<b>Existing Planning Guidance</b>	<p>The 1993 General Management Plan and the 2004 General Management Plan Revision provide overall guidance for the management of natural resources within the original national park boundaries.</p> <ul style="list-style-type: none"><li>• Continue recovery of shortgrass prairie.</li><li>• Consult with U.S. Fish and Wildlife Service to consider the feasibility of re-introducing the black-footed ferret.</li><li>• Survey for threatened and endangered species.</li><li>• Develop and implement a fire management plan.</li><li>• Develop a resource management plan to expand site evaluation and monitoring.</li><li>• Conduct a rare plant survey.</li><li>• Prepare a hazardous materials plan.</li><li>• Protect sewage lagoons near Rainbow Forest from floods.</li><li>• Management zoning describes basic protection of natural resources, by area, within the original park boundary.</li></ul>
<b>Planning Needs</b>	<ul style="list-style-type: none"><li>• Develop a resource stewardship strategy</li><li>• Extend management zoning to expansion lands</li></ul>
<b>Data and Analysis Needs</b>	<ul style="list-style-type: none"><li>• Inventory of health of shortgrass prairie ecosystem on expansion lands</li><li>• Inventory of hydrological resources on expansion lands.</li><li>• Inventory of threatened and endangered species on expansion lands.</li></ul>