



National Park Service
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Name of Office

Invasive Plant Management in the National Park Service: Exotic Plant Management Teams

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Outline

- NPS Mandates to Manage Invasive Species
- A Brief History of the Exotic Plant Management Teams (EPMT)
- Current EPMT Models and Benefits and Challenges



Haleakala Crater and endangered silversword plants. NPS photo, Pacific Islands EPMT. 2015.



NPS Mandates to Manage Invasive Species

The National Park Service is Created

- the Organic Act (1916) – “which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”
 - In the early days of the NPS conservation was protecting the scenic views that the public came to see, even if landscape and plant and animal populations had to be manipulated to achieve that
 - 1932 – 1934 Fauna No. 1 and Fauna No. 2, George Melendez Wright – Parks should be managed as functioning ecosystems rather than simply as scenery

NPS Mandates to Manage Invasive Species

- 1963 – The Leopold Report
 - A pivotal moment for the National Park Service
 - Urged that “naturalness should prevail” in park management
 - The Service should encourage native plants and animals, discourage non-native species, and minimize human intrusions in the parks
- 1967 (revisions in 1968 and 1970)
 - The first comprehensive management policies



Close-up profile of front half of buffalo bull.
Vertical. Ryan Hagerty. 2004.

NPS Mandates to Manage Invasive Species

In addition to Federal laws, policy, and regulations,
NPS Management Policies (2006)

- Exotic species will not be allowed to displace native species if displacement can be prevented.
- All exotic plant and animal species that are not maintained to meet an identified park purpose will be managed—up to and including eradication

NPS Director's Orders

- DO 100 - Guiding principles of resource management and stewardship in the NPS
- DO 12 – Conservation Planning, Environmental Impact Analysis, and Decision-making (NEPA Compliance)



Santa Monica youth volunteers posing with their hard work. NPS photo, California EPMT. 2014.

NPS Mandates to Manage Invasive Species

The Natural Resource Challenge

- To provide funding and structure to support scientifically informed ecological management in the NPS
- Proposed in 1998 and funded in 2000 – 2006 at \$80 million, substantially less than the \$200 million NPS felt it needed
- Goals of the Natural Resource Challenge
 - Protect native species and their habitats
 - Provide leadership for a healthy environment
 - Connect parks to protected areas and parks to people



Lassen Volcanic Cheatgrass Treatment. NPS photo, California EPMT. 2015.

A Brief History of the EPMTs - The Natural Resource Challenge

- The Natural Resource Challenge
 - Identified critical natural resource management concerns
 - Set up task forces to study how each might be best addressed systemwide (included an assessment of park needs)
 - Task forces identified best overall strategies for scientific resource management in parks and budgets based on needs assessment results
 - Many national programs were developed as a result including EPMT



Pinnacles NP invasive plant removal, Mike Shelley (left) and Gavin Emmons (right). NPS Photo, California EPMT. 2014.

The Natural Resource Challenge

- Funded National Level Programs
 - Created national programs (e.g., Biological Resources & Inventory and Monitoring Divisions)
 - Strengthened air- and water-quality programs
 - Created research learning centers
 - Created Cooperative Ecosystem Studies Units (CESUs)
 - Funded Exotic Plant Management Teams (EPMTs) – ca. 5M
- Many of the funds went directly to parks to support specialized fieldwork needs and create natural resource management programs



Casey Cate preparing to plant native woody plants at the George Washington Memorial Parkway Spout Run Parkway site.

A Brief History of the EPMTs - The Natural Resource Challenge

- Invasive Plant Management Objective
 - Assess range, abundance, and impact of invasive species (plants & animals)
 - Manage target invasive species
 - Develop a park and national based prevention program
 - Create NPS organization supporting invasive species management



Appalachian National Scenic Trail, Day Mountain. One of the many obstacles EPMT crews face.

A Brief History of the EPMTs - The Natural Resource Challenge

- Strategic Invasive Species Management in the NPS – 2000 (based on assessment of needs at the park level across the NPS)
 - Initial efforts to focus on plants
 - Begin by testing concept with three to four EPMTs to provide rapid response and management of invasive plants in clusters of parks, to focus on specific target species, and, where feasible and necessary, revegetation techniques specific to the targeted species
 - Fund invasive plant management projects at parks
 - Provide funding and training directly to parks to establish their own invasive plant management programs – expertise within individual parks, expertise within “node” parks

A Brief History of the EPMTs

- Lake Mead EPMT – Pilot NPS Program
- Staffing – 3-5 perm/team (5 FTE)
 - GS-12 Liaison (program coordinator)
 - GS-7 to 9 Field Crew Leader
 - Data Manager
 - Seasonal staff
- Traveling teams
- Regions submitted proposals
 - March 2000: Four teams selected (NCR, FLC, HI, Chihuahuan) funded at \$1M total
 - \$400,000 went directly to parks to fund projects
- By 2004 there were 16 nationally funded EPMTs



Lake Mead EPMT controlling tamarisk along the Muddy River, NV (BLM). NPS photo, Lake Mead EPMT. 2015.



Youth Corps conducting restoration at Denali National Park & Preserve. NPS photo, Alaska EPMT. 2014.

Exotic Plant Management Team Program

17 EPMTs across the country

- 15 are funded from the national office
- One is funded through a park
- One is funded through an Inventory and Monitoring Network
- EPMTs' work is guided by steering committees



Exotic Plant Management Team Program

- Serve as the source of regional invasive plant management expertise and boots-on-the-ground support to nearly 290 park units
- Conduct invasive plant inventories and treatment; engage in other aspects of ecological restoration
- Support professionalization of invasive plant management
- Provide training to park staff
- Finalized Invasive Plant Program Strategic Plan to set the program's direction over the next 5 years
- EPMT Advisory Group provides support to the teams and the national program



Lake Mead EPMT controlling tamarisk along the Muddy River, NV (BLM). NPS photo, Lake Mead EPMT. 2015.



Youth Corps conducting restoration at Denali National Park & Preserve. NPS photo, Alaska EPMT. 2014.

EPMTs – Current Models

- Traditional team model (traveling team) – Southeast, Southeast Coast (park base funded team), Mid-Atlantic
 - Liaison, Field Crew Leader, Shared Data Manager, Seasonal Field Staff or Public Land Corps Interns
 - Challenges
 - Travel ceiling is particularly difficult for traveling teams that hire seasonal NPS staff
 - Training of new staff is constant
 - Equipment must be maintained and managed



Staff from Ocmulgee National Monument and SEC EPMT crew members pose after hand-pulling tung oil (*Vernicia fordii*) at Cumberland Island NS. NPS Photo.

EPMTs – Current Models

- Traditional team model
 - Benefits
 - Provides expertise and training to small parks (small cultural resource parks often lack natural resource management expertise)
 - Serves as institutional knowledge of natural resource management
 - Develop strong ties and very good working relationships with parks



SE EPMT Team Leader, Toby Obenauer, conducting ATV Rider Safety Certification Course for NPS staff at Little River Canyon National Preserve. NPS photo.

EPMTs – Current Models

- Work contracted – Florida/Caribbean
 - Liaison (project oversight), Shared Data Manager
 - Florida supports a cadre of contractors with expertise in managing invasive species in natural areas
 - Works closely with adjacent land management entities
 - Works closely with I&M Network
 - Challenges
 - Contracting works well in Florida because of the expertise available in that state, it may be challenging in other parts of the country
 - Contracting work is more expensive in the short term



Digital Aerial Sketch Mapping Project at Everglades National Park. NPS Photo.

EPMTs – Current Models

- Work contracted
 - Benefits
 - Expertise does not have to be built into the NPS except for the position that provides project oversight and data management (also a drawback)
 - Travel ceiling is not really an issue when only one person is traveling
 - There is no equipment to maintain and manage



Removing water hyacinth from Spanish Pond, Timucuan Ecological and Historic Preserve. NPS photo, Florida Caribbean EPMT. 2015.

EPMTs – Current Models

- EPMT extends work through agreements – Lake Mead
 - Liaison, Field Crew Leaders, Data Manager, NPS Seasonal Crews
 - Work at a watershed scale through agreements
 - Engages with many partners within the watershed
 - Challenges
 - This model may not be as effective in the eastern US where many entities, including private landowners, manage small tracts of land
 - Relies on funds from other entities
 - Liaison spends more time planning and scheduling work and managing agreements



LAKE EPMT staff conduct tamarisk control at the old St Thomas school, Lake Mead National Recreation Area, 2016. NPS Photo.

EPMTs – Current Models

- EPMT extends work through agreements
 - Benefits
 - Serves as an interagency strike force (efficiencies in training, management of equipment and supplies)
 - Shares positions and maintains expertise for a longer term
 - Enables coordination of work at the watershed scale because team is working across agencies



LAKE EPMT staff treating buffel grass at Fortuna Canyon, Barry M. Goldwater Range, AZ. NPS Photo.

EPMTs – Current Models

- Provide grants to parks – California and Northeast
 - Liaison (project oversight), Data Manager, (Field Crew Leader/Trainer)
 - Works closely with staff from other NPS Programs including Fire and I&M
 - NE EPMT supports node at Boston Harbor Islands National Recreation Area
 - Challenges
 - Getting data from parks in the NPS standard
 - Most successful when parks have NR Management expertise and park staff that can provide on site supervision



Reed canarygrass in Bradley Meadow in June 2001 before treatment (left), and Bradley Meadow after treatment in 2013 (right). Diverse native vegetation now dominates. NPS Photos.

EPMTs – Current Models

- Provide grants to parks – California and Northeast
 - Benefits
 - Similar to benefits when work is conducted via contract
 - Supports development of invasive plant management expertise in parks



NE EPMT crew trek miles along Atlantic Ocean side of Fire Island looking for Early Detection species in dune washouts caused by Hurricane Sandy. NPS Photo.

EPMTs – Current Models

- Fund more research and restoration, serve all parks within defined boundary – Southwest
 - Liaison (project oversight), Shared Data Managers, Field Crew Leaders, Shared Botanist to inform restoration, youth corps interns by project
 - Integrate work with I&M, Fire Program, and parks
 - In the Southern Plains I&M Network, programs and parks work together to establish “Desired Conditions”



SW EPMT crew working on erosion control at Bandelier NP.
NPS Photo.

EPMTs – Current Models

- Fund more research and restoration, serve all parks within defined boundary
 - Challenges
 - Covering a large area and many parks – 52
 - Botanist – area so large that few botanists have the required expertise, always traveling which doesn't work for someone with a family
 - Sharing positions with others may not assure that good data are collected
 - Benefits
 - Research directed by the team, much of it focused on restoration, informs team's work
 - Efficiencies in working with other programs – Fire, I&M, Parks



SW EPMT native youth building a Zuni bowl at Bandelier NP.
NPS Photo..

Questions



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