Exotic (and sometimes invasive) Plant Management on the Kenai National Wildlife Refuge

John Morton
Kenai National Wildlife Refuge

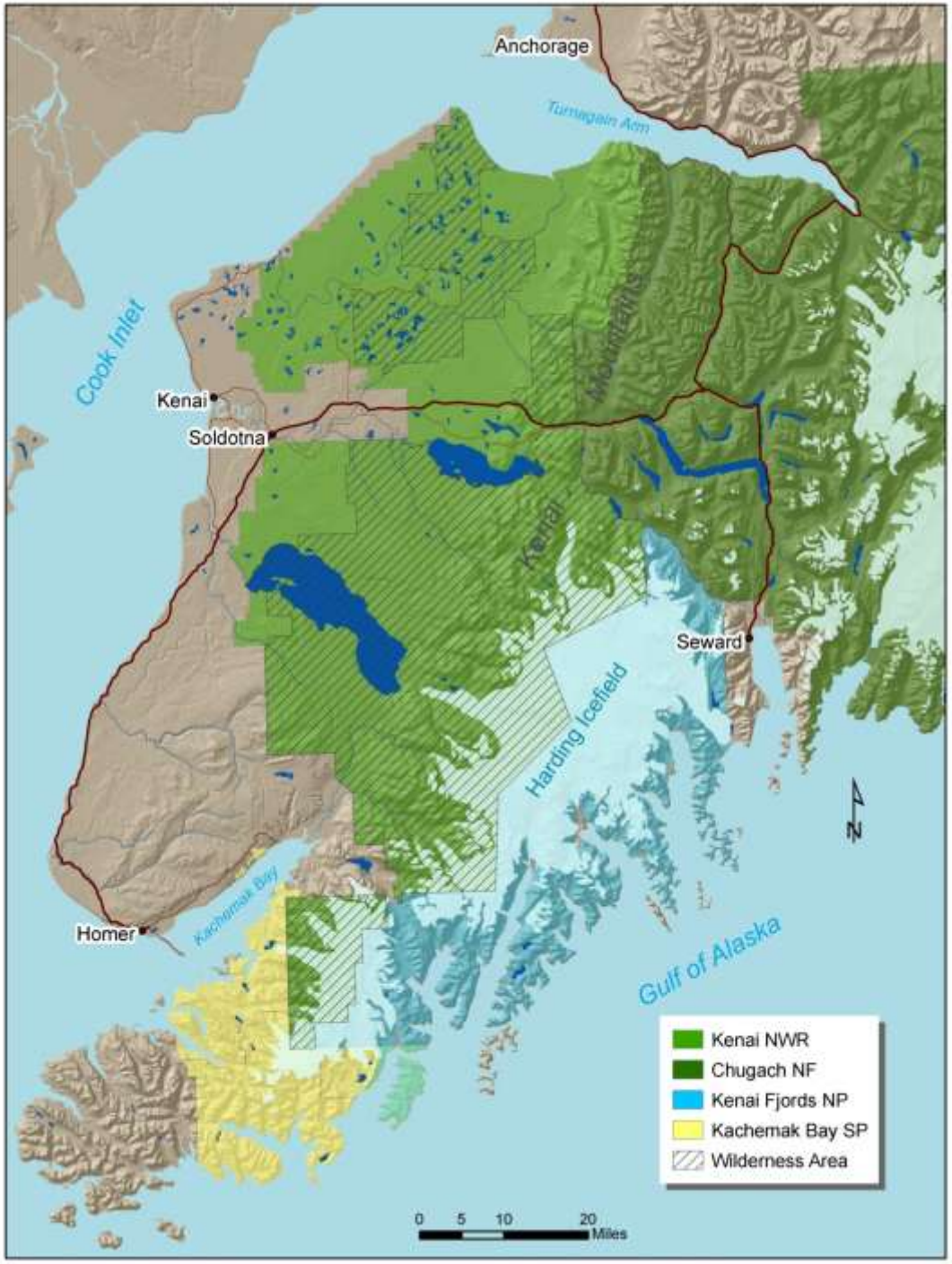
3230B
6/14/2004 9:36

REFUGE MANDATES

- conserve fish & wildlife populations and habitats in their *natural diversity*
- ensure *water quality and necessary water quantity*

- leave [it] *unimpaired* for future use and enjoyment as wilderness

- ensure that the *biological integrity, diversity, and environmental health* of the System are maintained



✓1,800+ miles of seismic lines

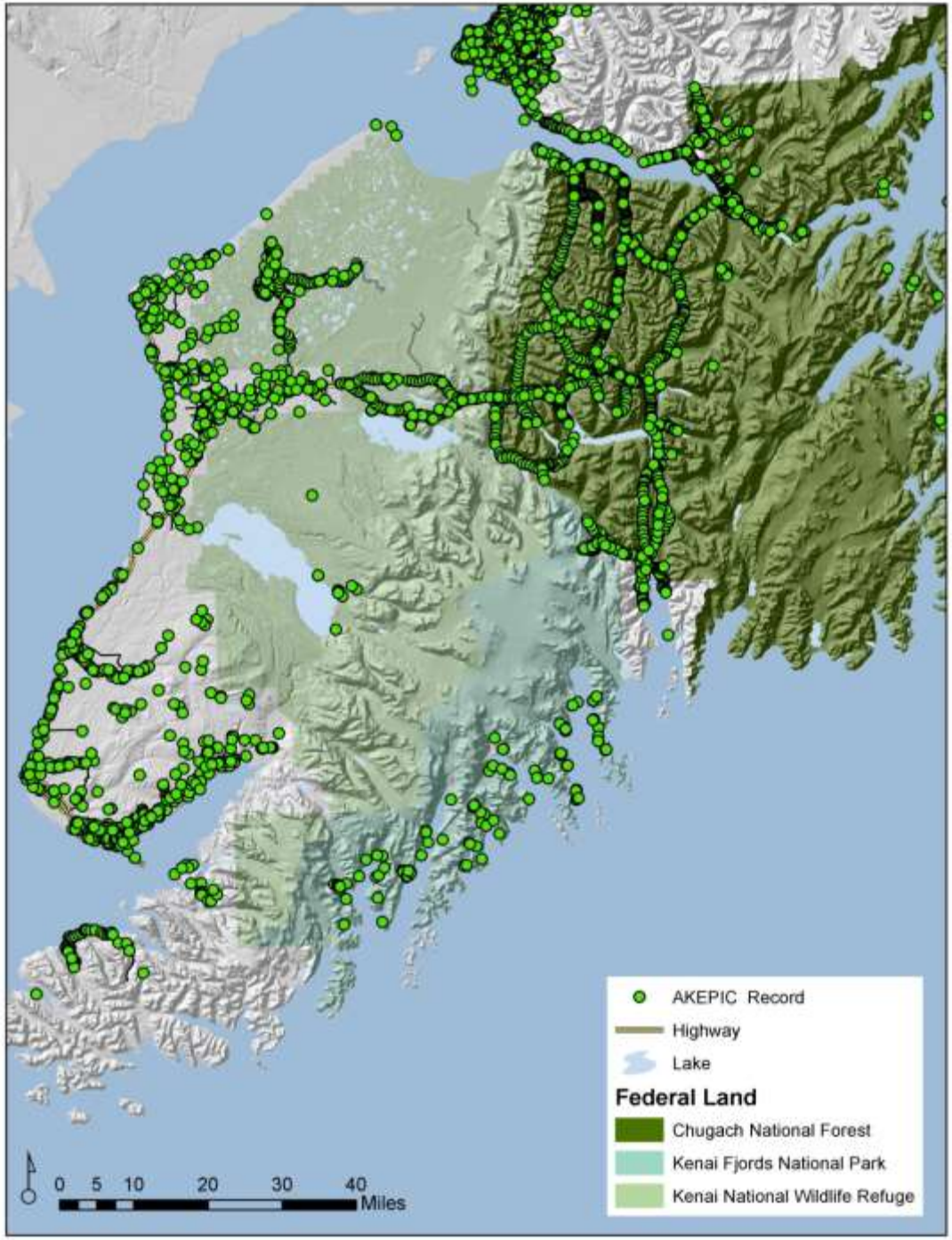
✓3,016 miles of road, crossing anadromous streams at 381 locales

✓1.4 million vehicles per year on the Sterling Highway

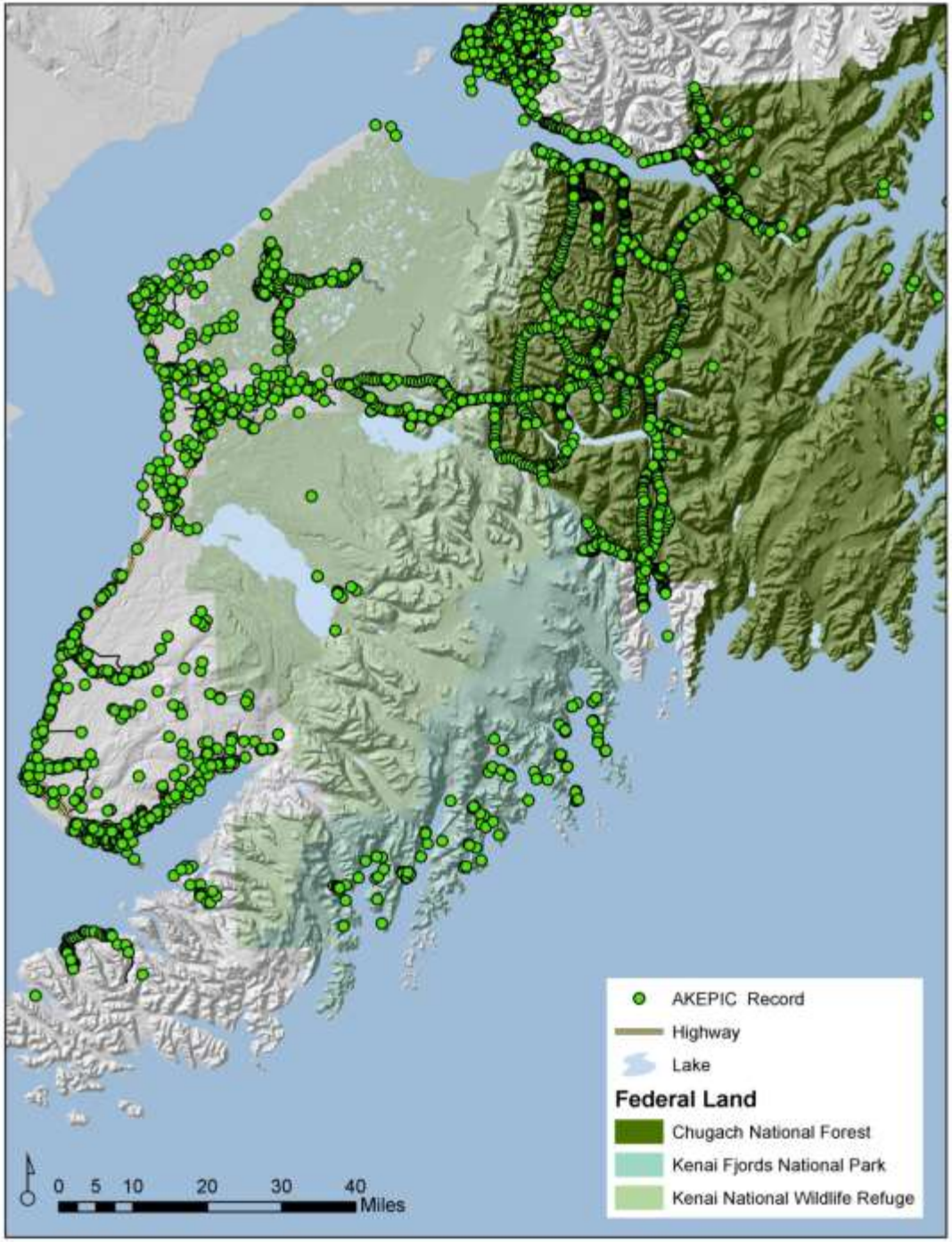
✓238,800 acres of private lands divided into 55,000 parcels

✓ 2.2% human population growth
= 1,000 new residents/year
= 1.5 housing units/day

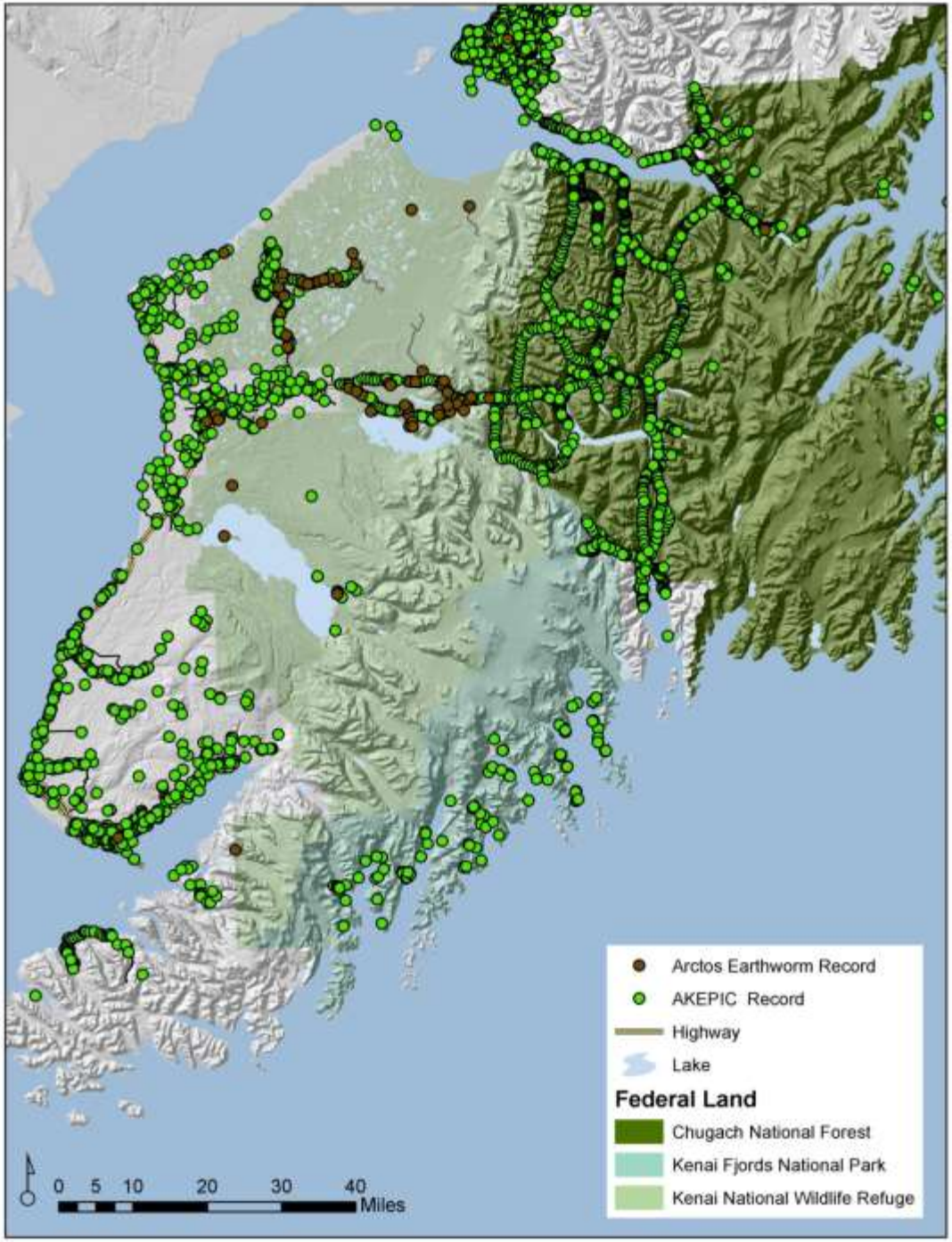
✓175 miles wildland-urban interface



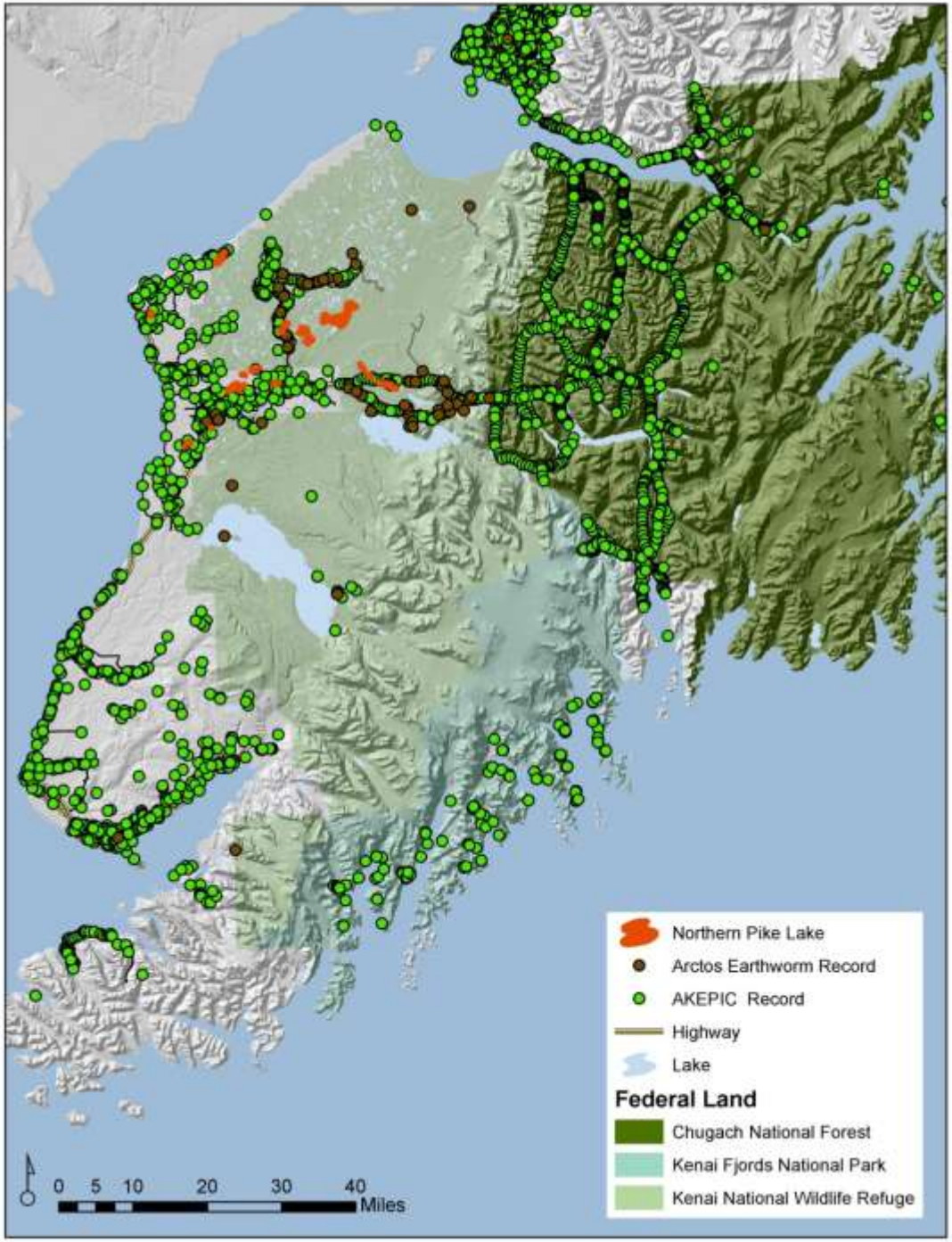
22,174 AKEPIC records representing ~110 exotic vascular plant species



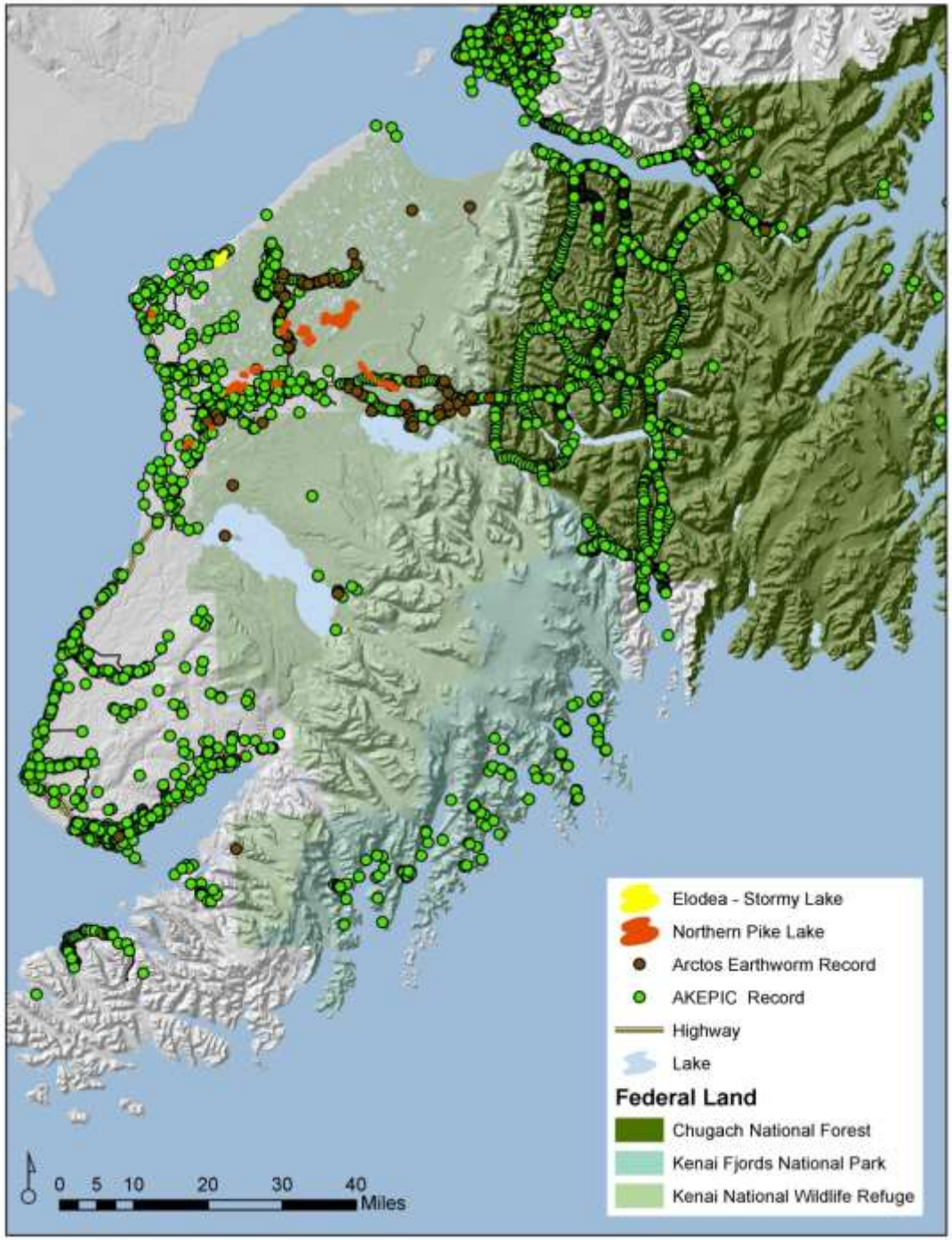
18 AKNHP ranking >60
9 AK noxious weeds



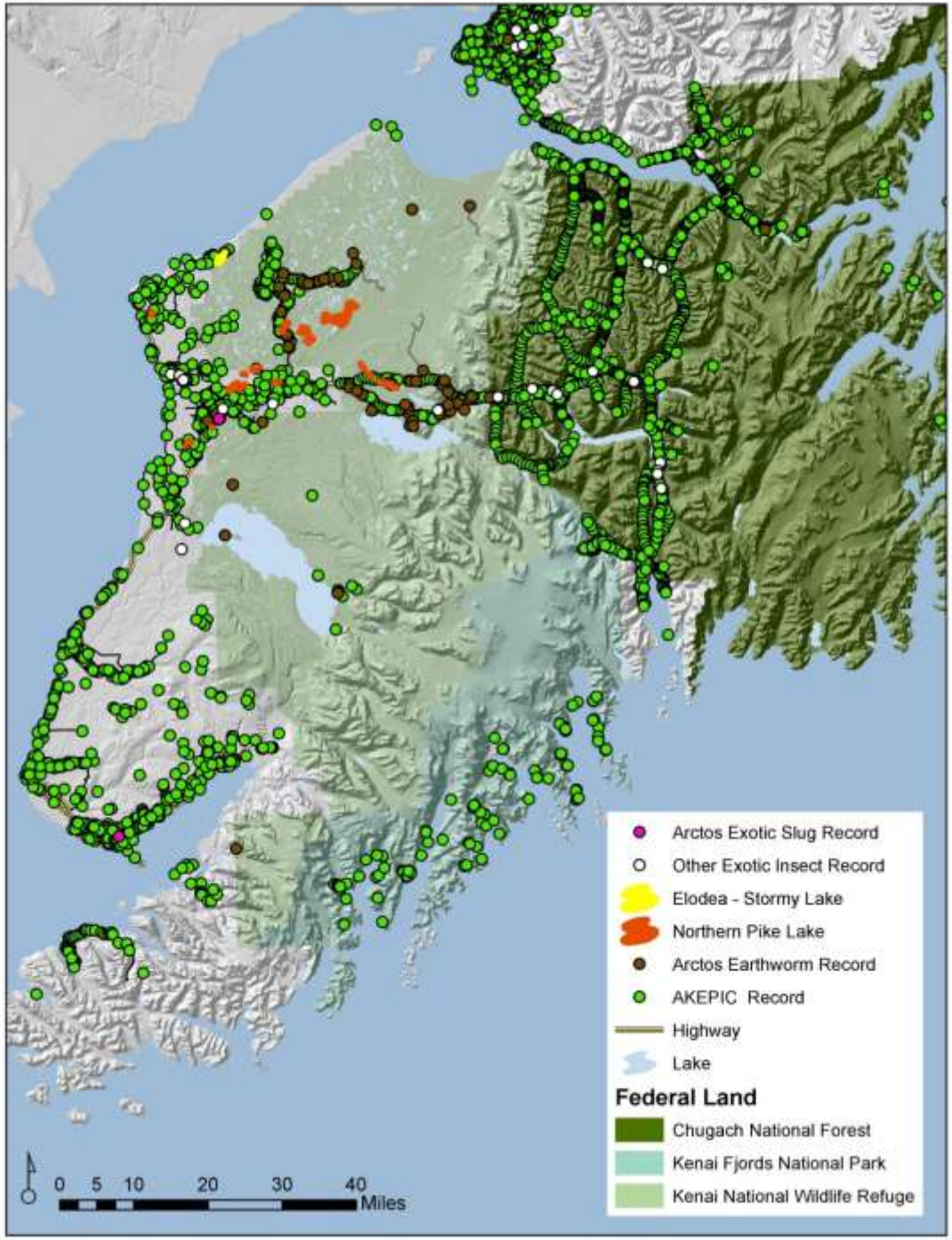
5 species (3 genera) of exotic earthworms



14+ lakes have introduced northern pike

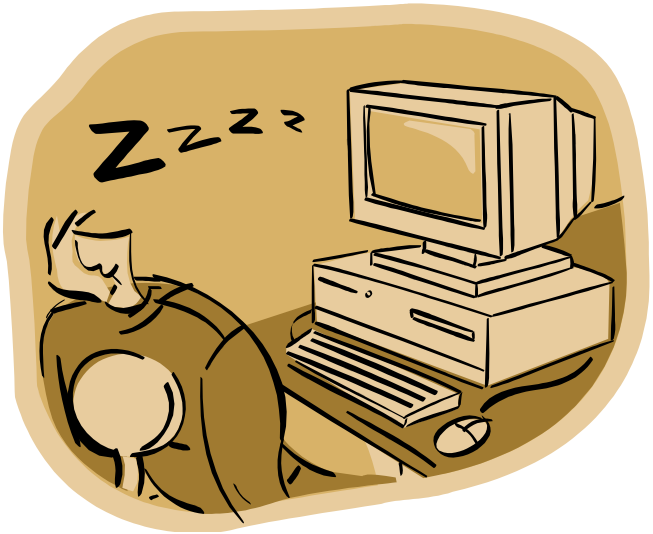


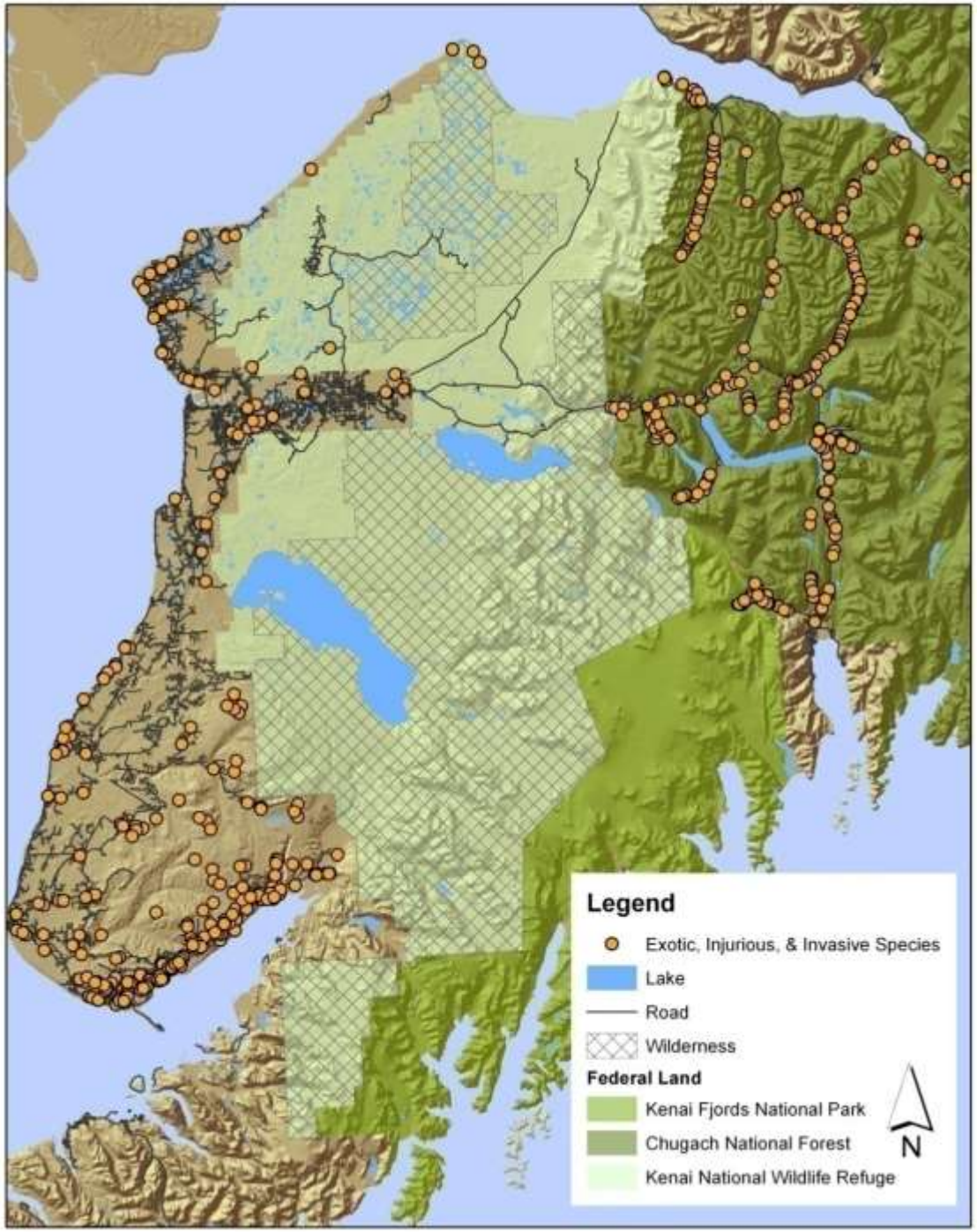
2 lakes have Elodea



2 slugs
several insects

Where we were in 2004…
(60 species)

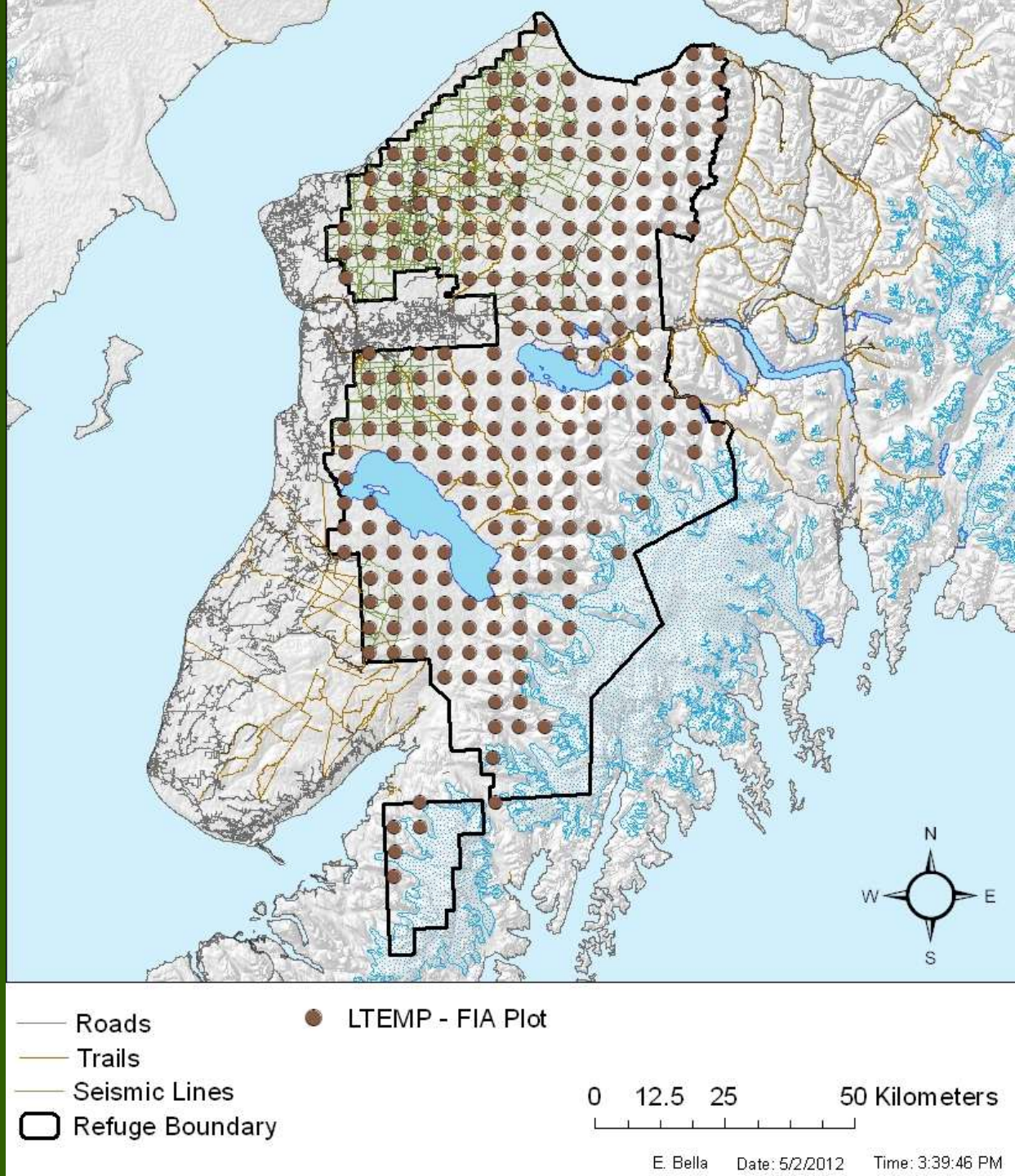




Inventory and permanent plots for monitoring at landscape scale

255 permanent systematically-distributed plots across the 2-million acre KENWR

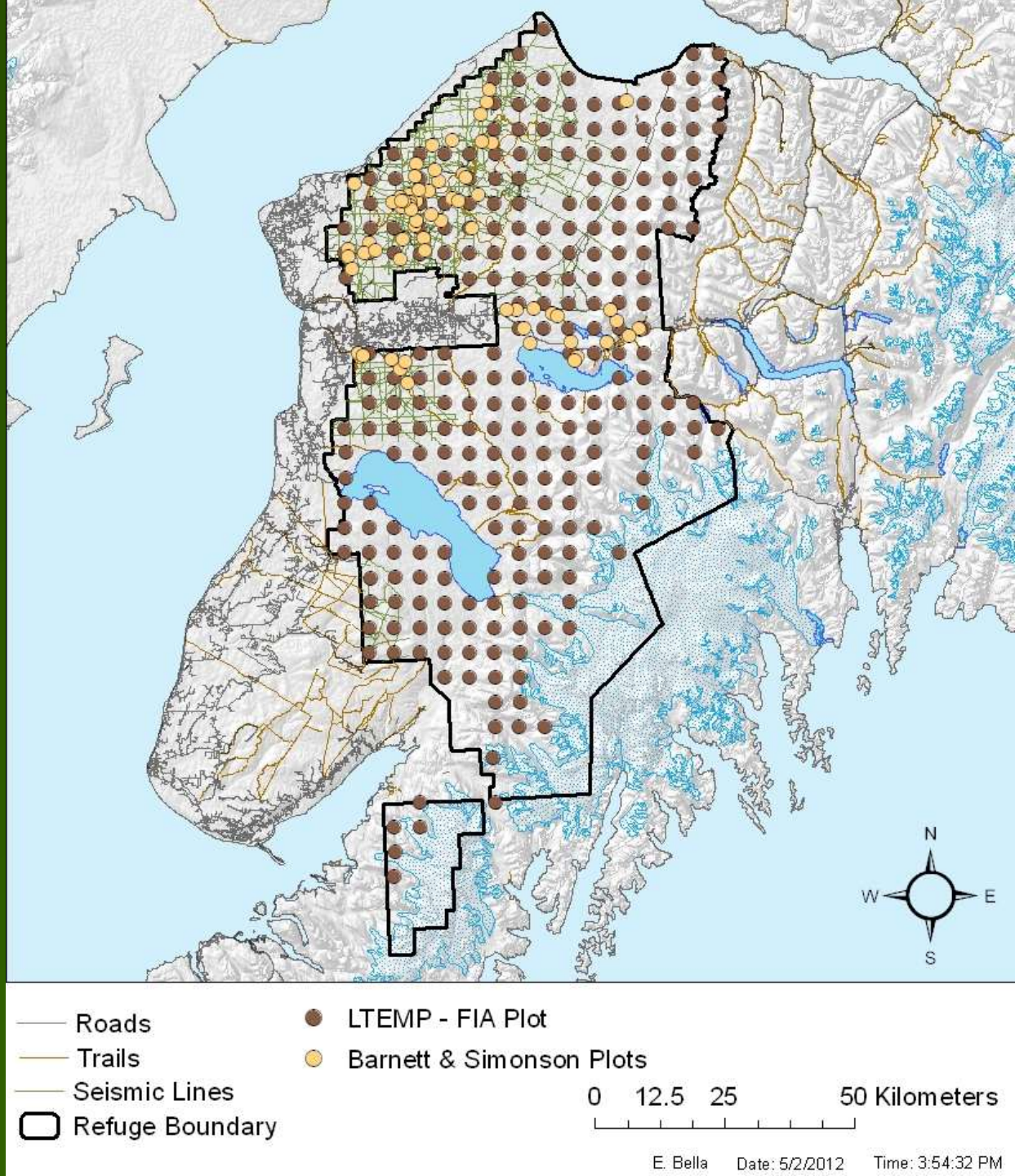
<3% contaminated with 3 exotic plant species



Inventory and permanent plots for monitoring human footprint

74 permanent stratified-random plots within the 56,000-acre human footprint (Barnett &Simonson 2007)

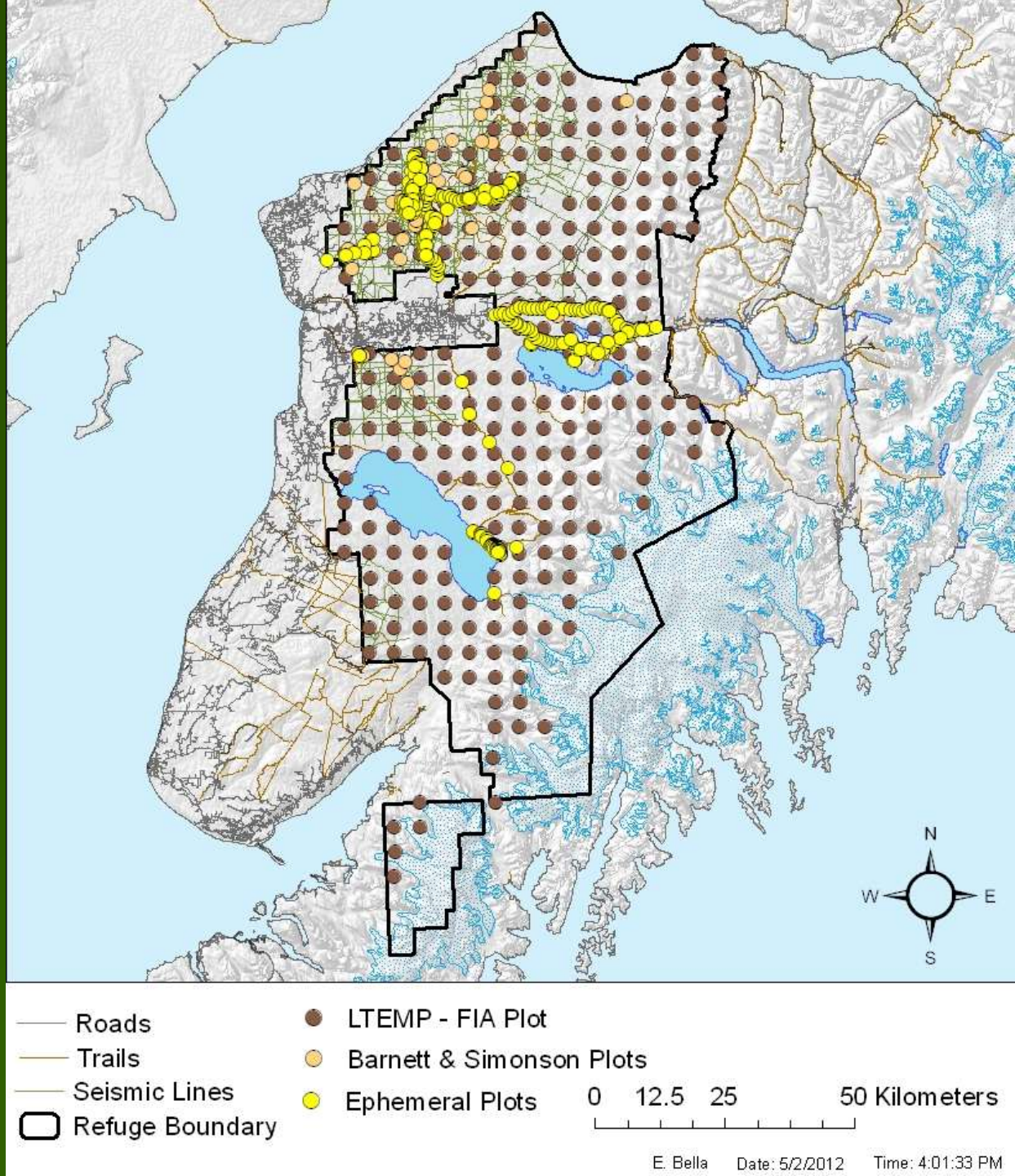
100% contaminated with 28 exotic plant species

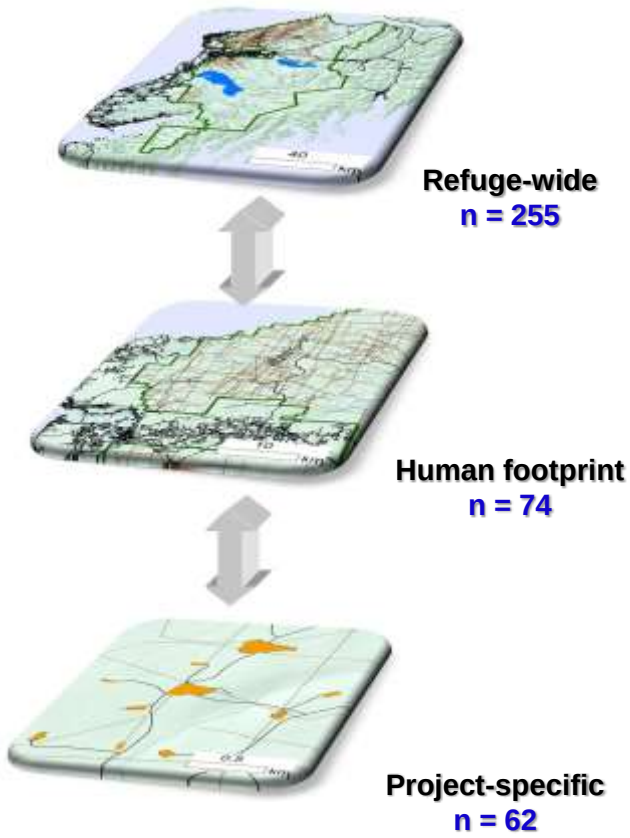


Ephemeral surveys of targeted land use

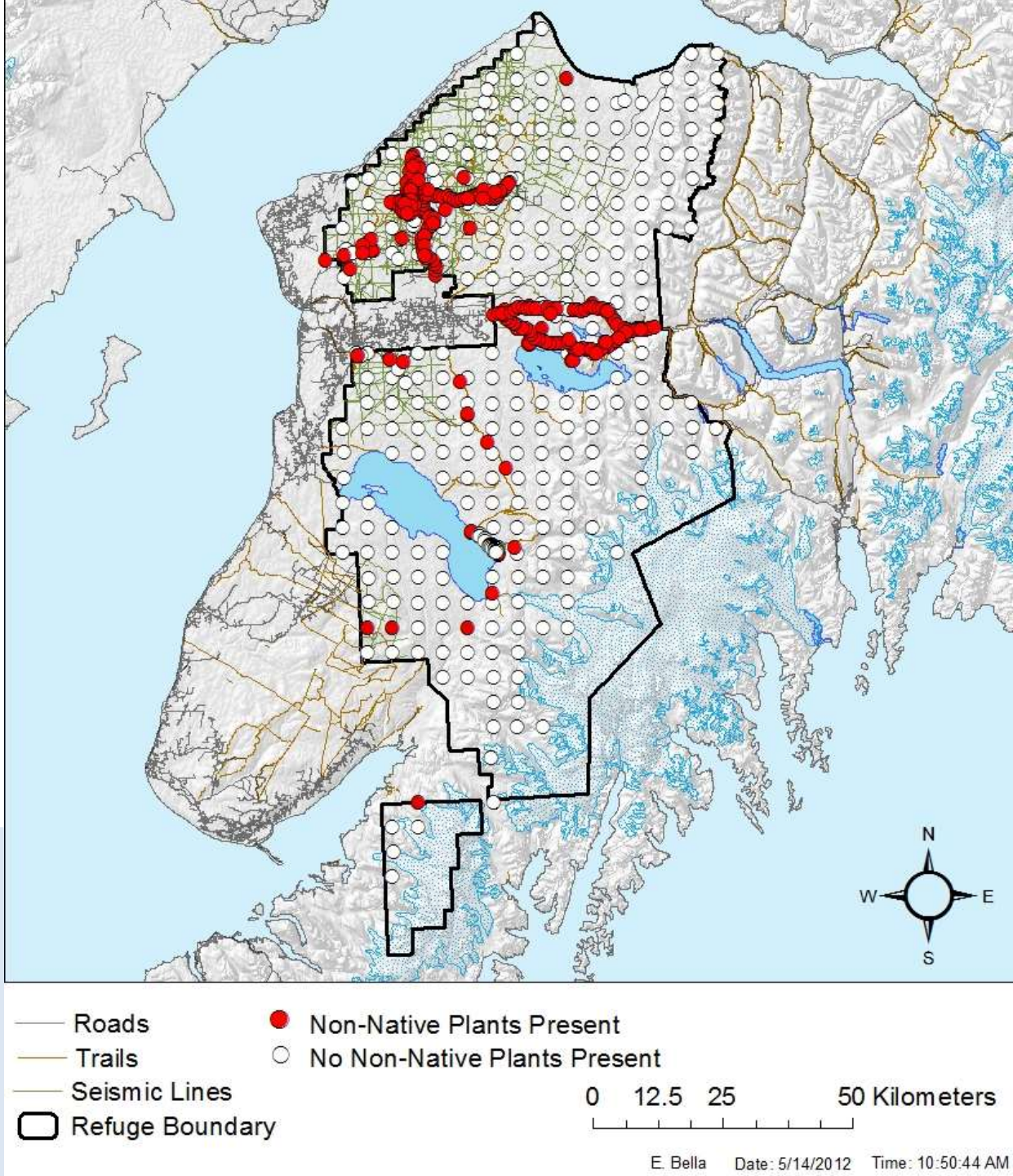
Slemmons 2005
BAER 2005,06
Hanson Horse Trail 2006
Swanson Oil Field 2007 & 09

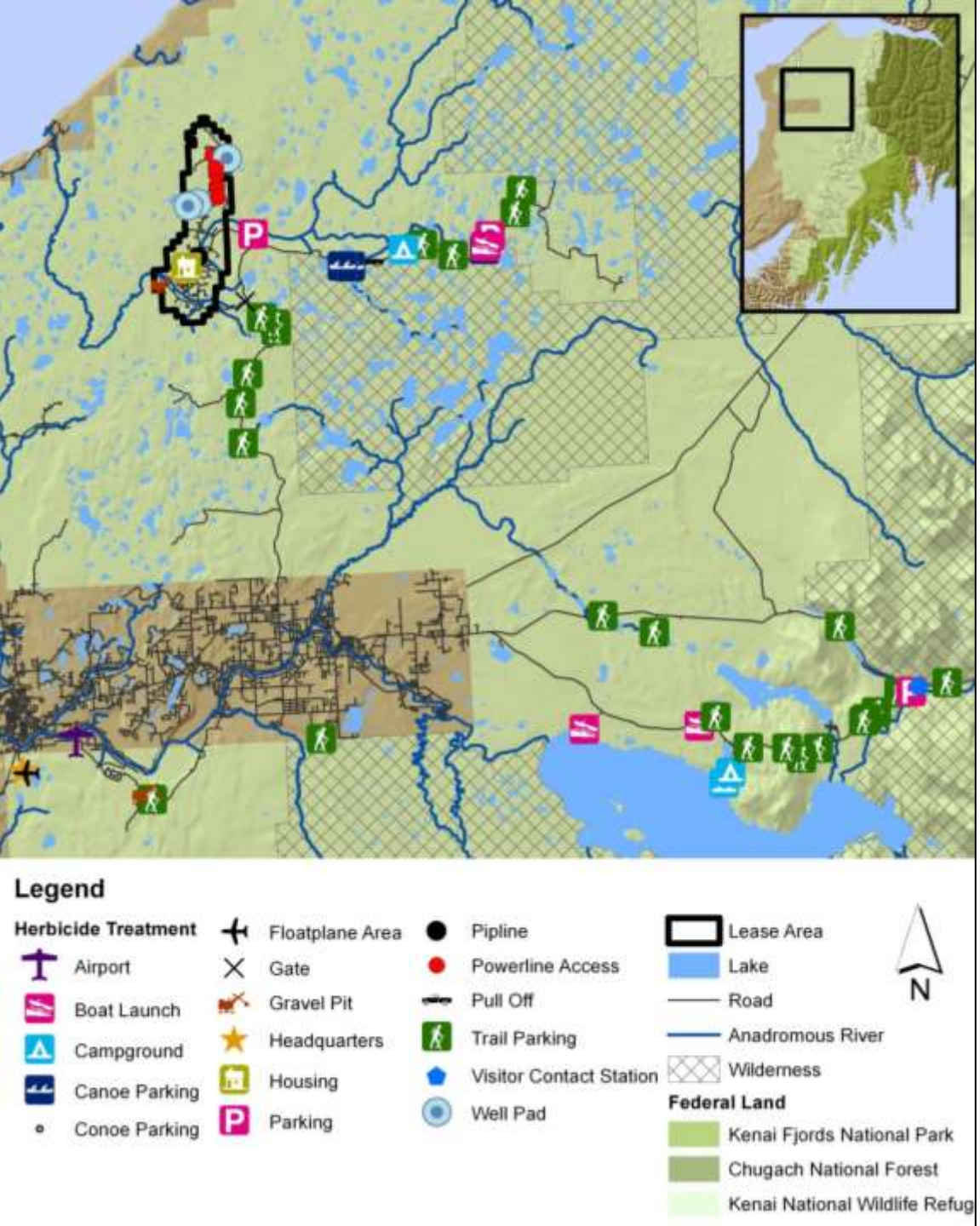
~84% contaminated with 62 exotic plant species





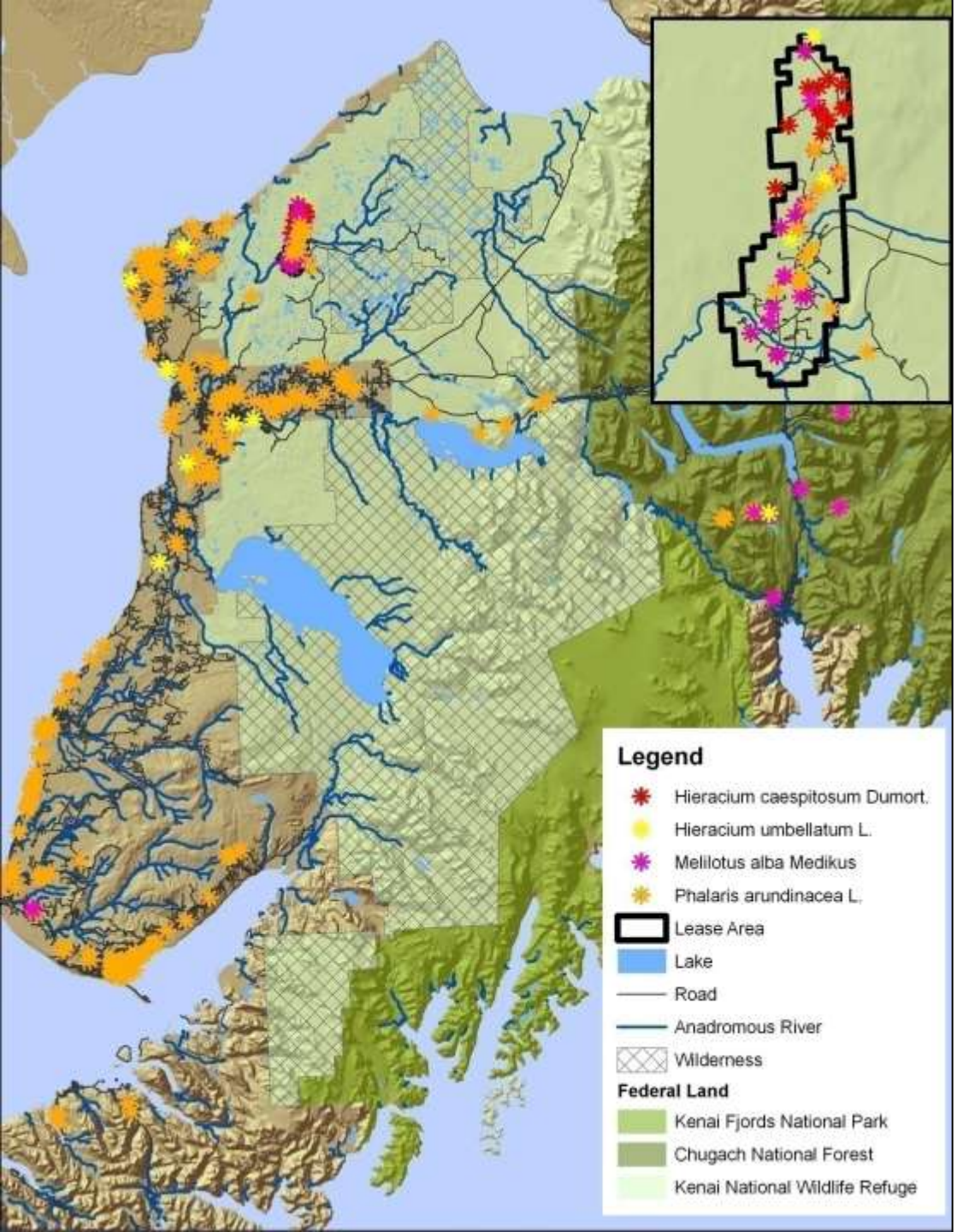
LTEMP 2004 & 06
Slemmons 2005
BAER 2005,06
Hanson Horse Trail 2006
Barnett & Simonson 2007
Swanson Oil Field 2007 & 09





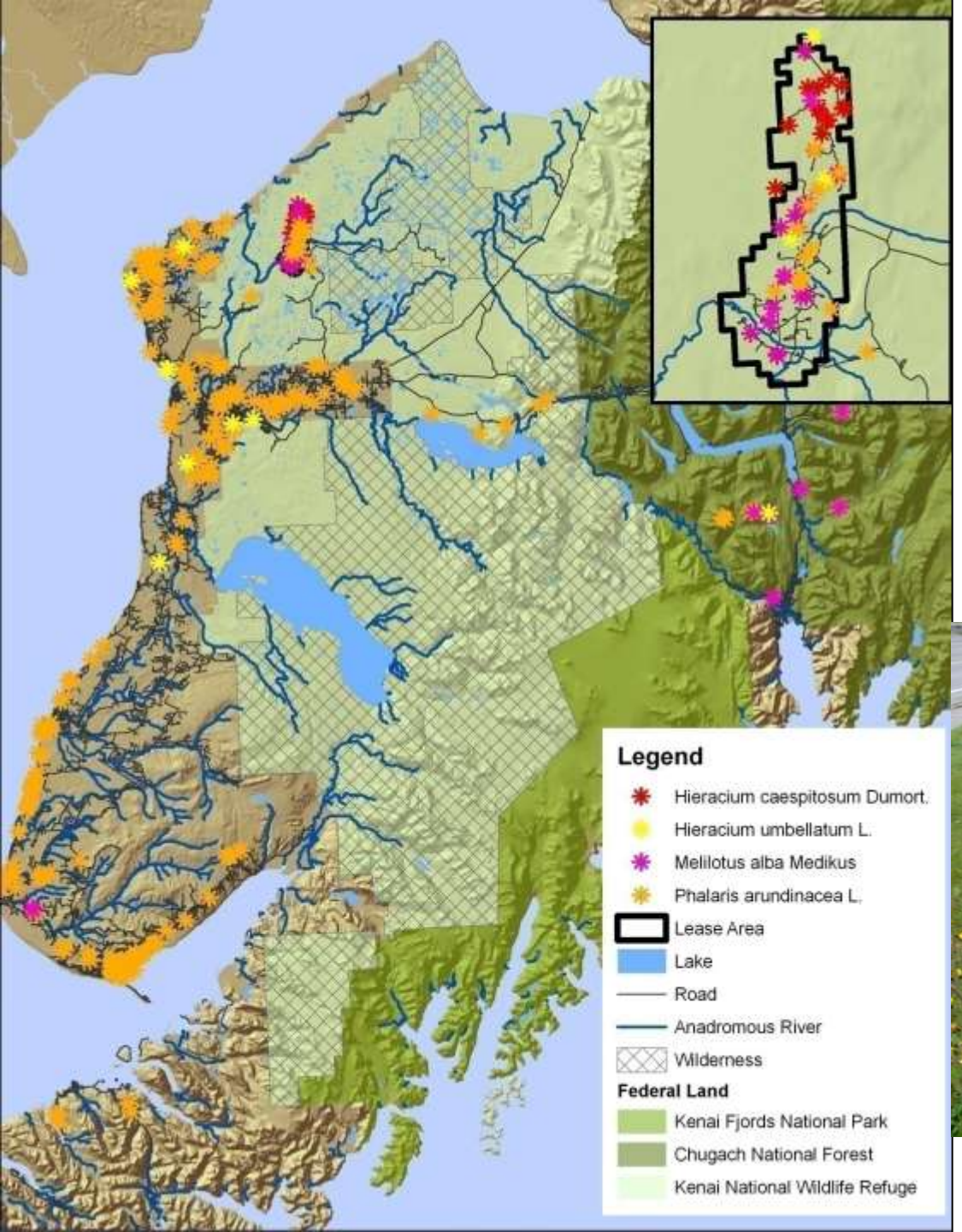
Spatially-explicit targets (all species)

29 trail heads
6 boat launches
2 horse trails
Soldotna hangar
float plane launch
KENWR facilities yard



Species-specific targets

Hieracium caespitosum
Hieracium umbellatum
Melilotus alba
Phalaris arundinacea



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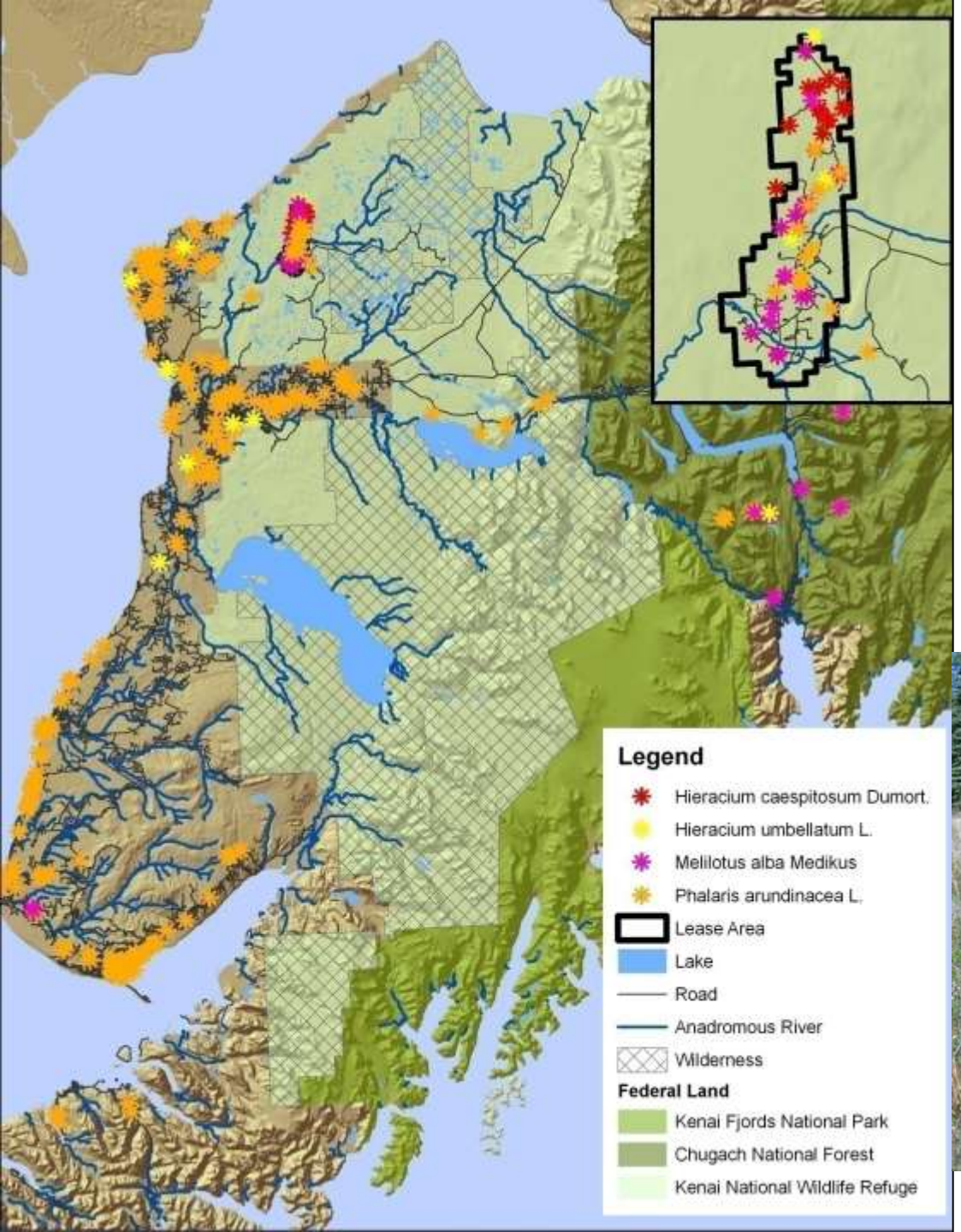

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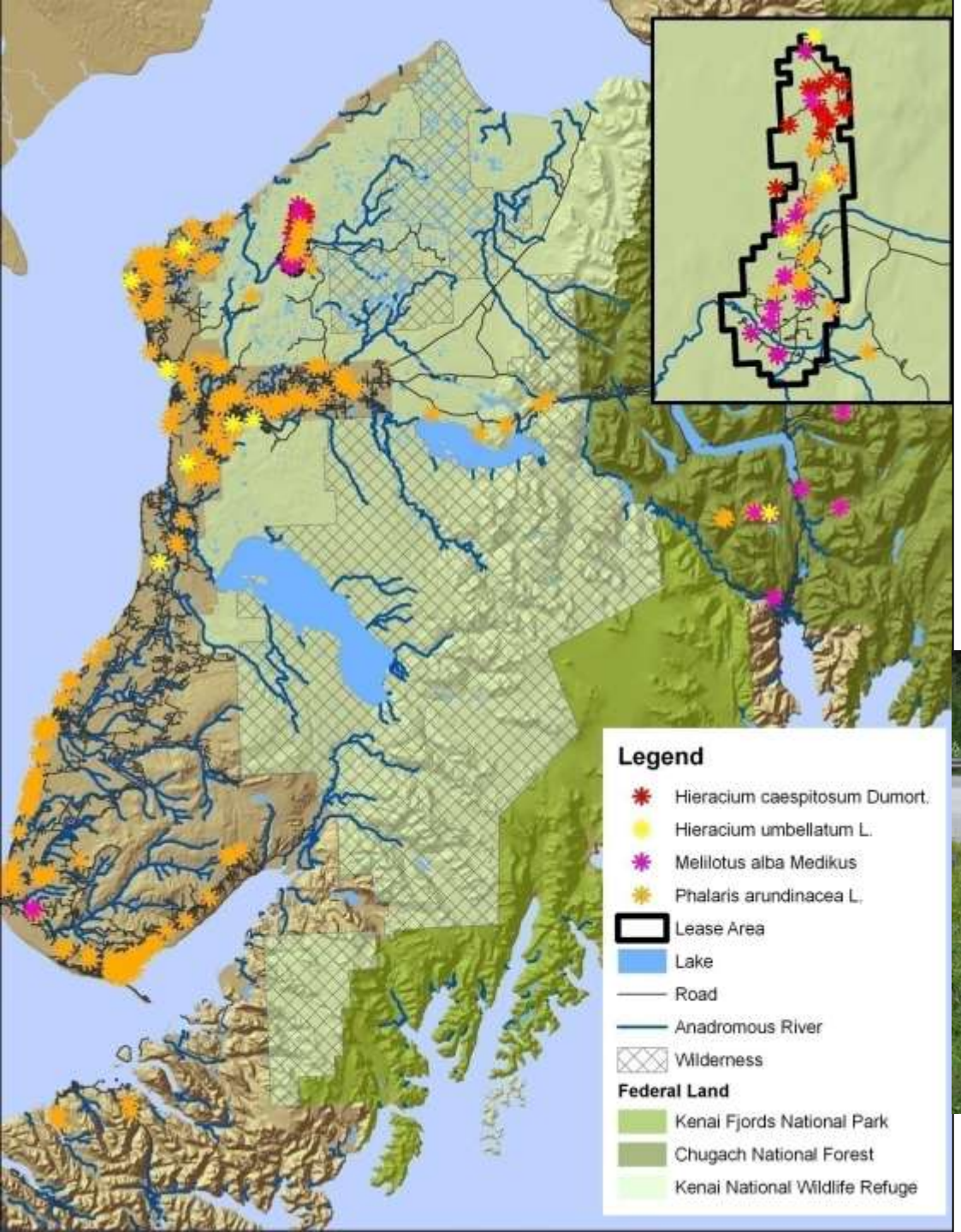

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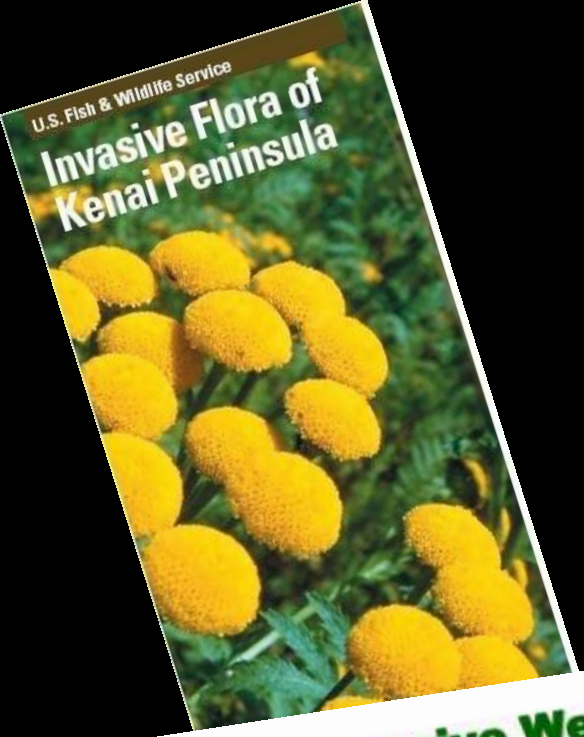
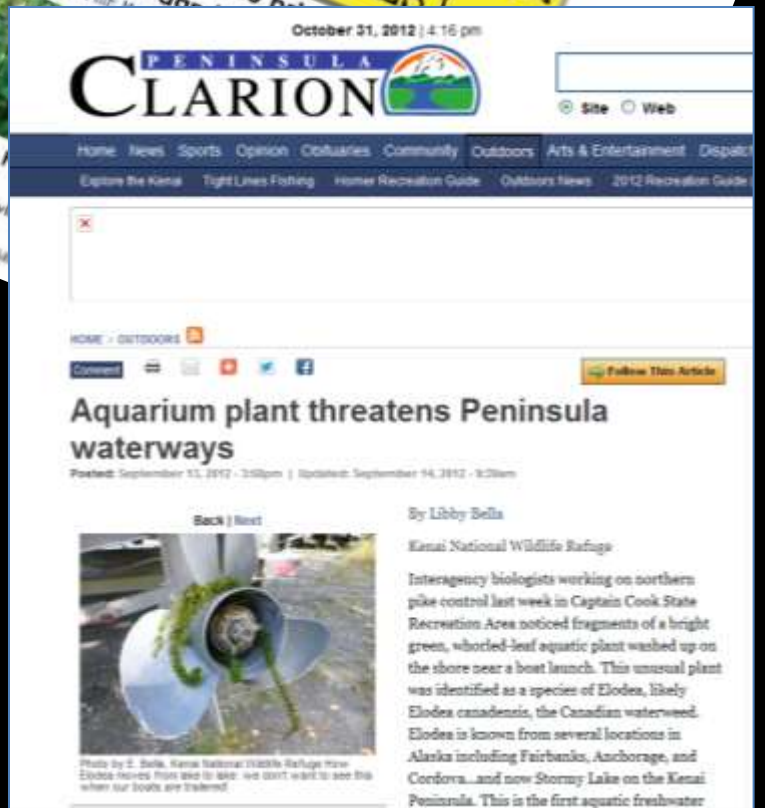

U.S. Fish & Wildlife Service
Invasive Flora of Kenai Peninsula

RESPONSIBLE HOME LANDSCAPING FOR SOUTHCENTRAL ALASKA

DANDELION SUNDAE
Sunday, June 4
Kenai National Wildlife Refuge
Headquarters in Soldotna
1 - 4 PM
FREE ICE CREAM SUNDAES
for everyone who
full of

4th Annual Invasive Weed Workshop
Join Us to Learn About ALIEN Plants INVADING the Kenai Peninsula
Thursday May 18th, 2006
Kenai Peninsula College – Kachemak Bay Campus in Homer
10:30 AM Janice Chumley – Kenai Peninsula Cooperative Weed Management Area
Caleb Slemmons – Homer Soil and Water Conservation District
11:30 Gino Graziano – Alaska Association of Conservation Districts
1PM Samuel Terpstra – Kenai Peninsula Cooperative Weed Management Area
1:20 John Morton – Kenai National Wildlife Refuge
2:00 Irina Lapina – Alaska Natural Heritage Program
2:45 CWMA TAC Meeting
4:00 Chris McKee – Chugach National Forest
4:15 Carla Stanley – Friends of Alaska Refuges
4:30 Break
5:00 Tom Johns – UAF Cooperative Extension Service
6:00 Keynote speaker – Sara Simonson
Gazing INTO THE CRYSTAL BALL: US Geological Survey and NASA Predict Biological Invasions
6PM – Presented by: Sara Simonson
National Institute of Invasive Species Science
SPONSORED BY: Homer SWCD, Alaska Association of Conservation Districts and USFS – State and Private Forestry


October 31, 2012 | 4:16 pm
PENINSULA CLARION
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Aquarium plant threatens Peninsula waterways
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By Libby Bella
Kenai National Wildlife Refuge
Interagency biologists working on northern pike control last week in Captain Cook State Recreation Area noticed fragments of a bright green, whorled-leaf aquatic plant washed up on the shore near a boat launch. This unusual plant was identified as a species of Elodea, likely Elodea canadensis, the Canadian waterweed. Elodea is known from several locations in Alaska including Fairbanks, Anchorage, and Cordova...and now Stormy Lake on the Kenai Peninsula. This is the first aquatic freshwater

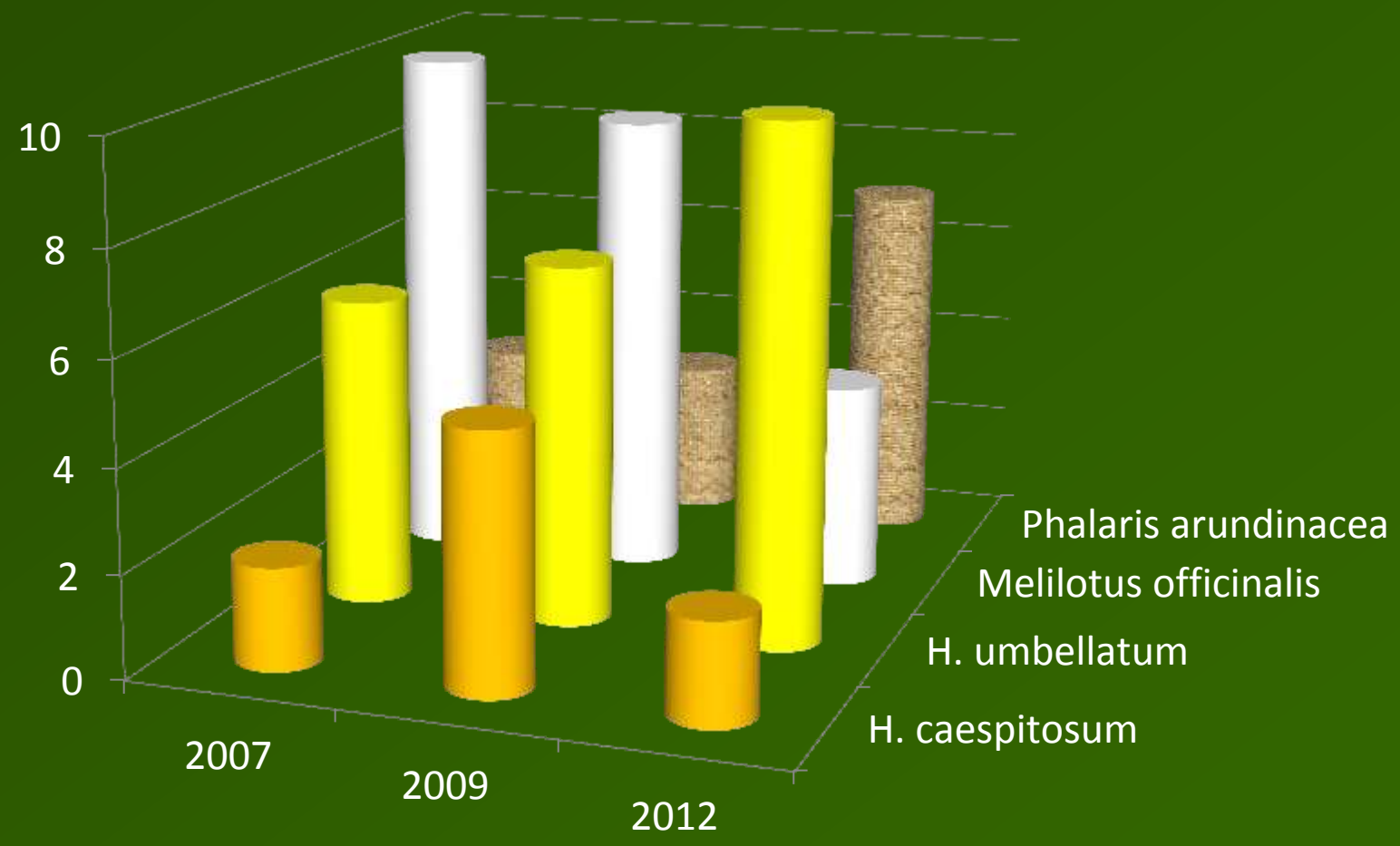
Weed-Free Trail

07.22.2008

solo
AGRI-DEX

Year	Outreach and other activities	KENWR survey	Glyphosate (gal)	Milestone (gal)	Exotic Species (KP)
2003	1st KP Annual Invasive Weed Workshop				
2004	KP-CWMA launched	LTEMP (refuge-wide)			3 (60)
2005	*Invasive Flora of the Kenai Peninsula* Dandelion Sundae	Slemmons (disturbed areas) AK-NHP (cabins) Plauth (aquatic plants)			42
2006		LTEMP Hanson horse trail AK-NHP			62 (90)
2007	CWMA Strategic Plan	Barnett & Simonson Swanson Oil Field	**10**		
2008			**150**		
2009		Swanson Oil Field	**550**	**780**	
2010	*Responsible Home Landscaping for Southcentral Alaska*		**200**	**110**	
2011	RCG strategic plan (CWMA) $10K to ISER trail boot brushes	Saltmarsh (earthworms)	**165**	**90**	
2012		Swanson Oil Field	**65**	**100**	73 (112)

Occurrence of 4 target species on 53 oil pads

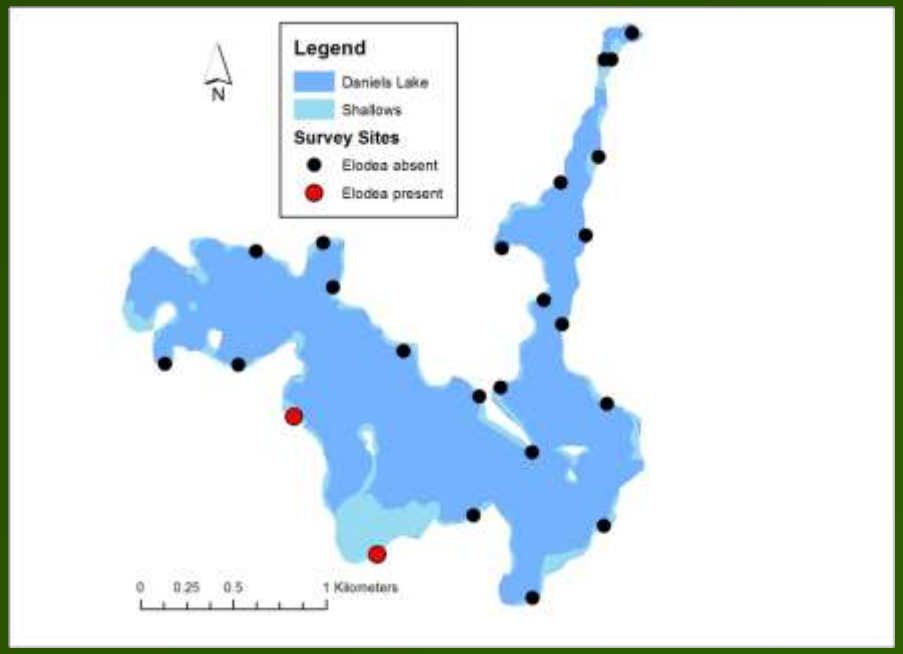


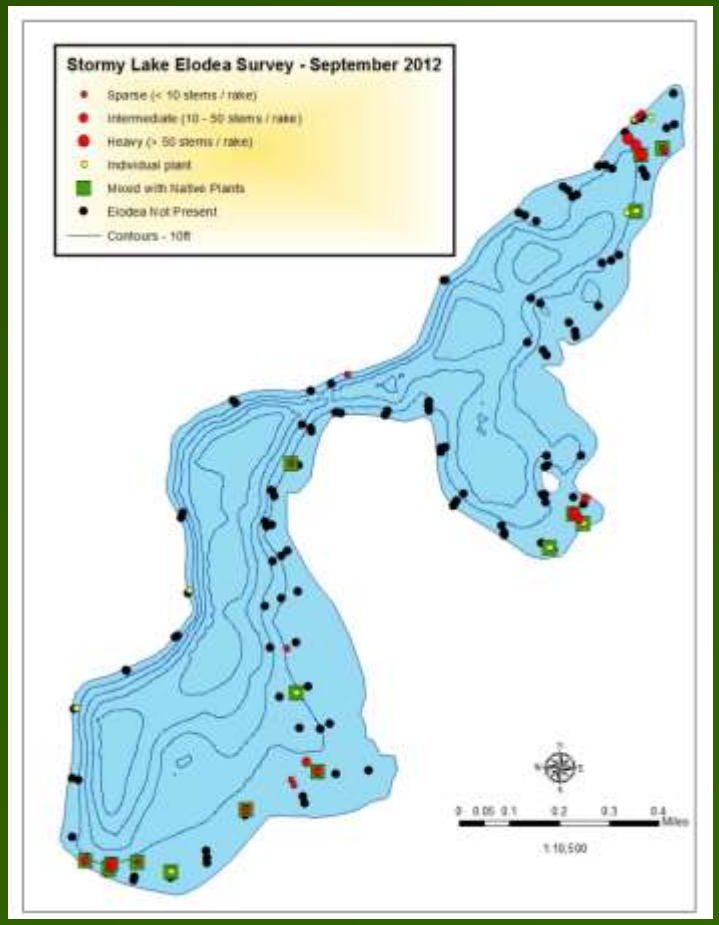
Exotic species eradicated on KENWR

Achillea ptarmica	sneezeweed
Asperugo procumbens	German madwort
Betula pendula var. dalecarlica	European white birch
Cytisus scoparius	Scotch broom
Melilotus officinalis	(yellow) sweetclover
Polygonum convolvulus	black bindweed
Senecio integerrimus var. exaltatus	Columbia ragwort
Sonchus arvensis	field sowthistle
Sorbaria sorbifolia	false spirea
Tanacetum vulgare	common tansy
Typha latifolia	broadleaf cattail
Viburnum opulus var. americanum	American cranberrybush

1015727

Elodea canadensis x nuttallii





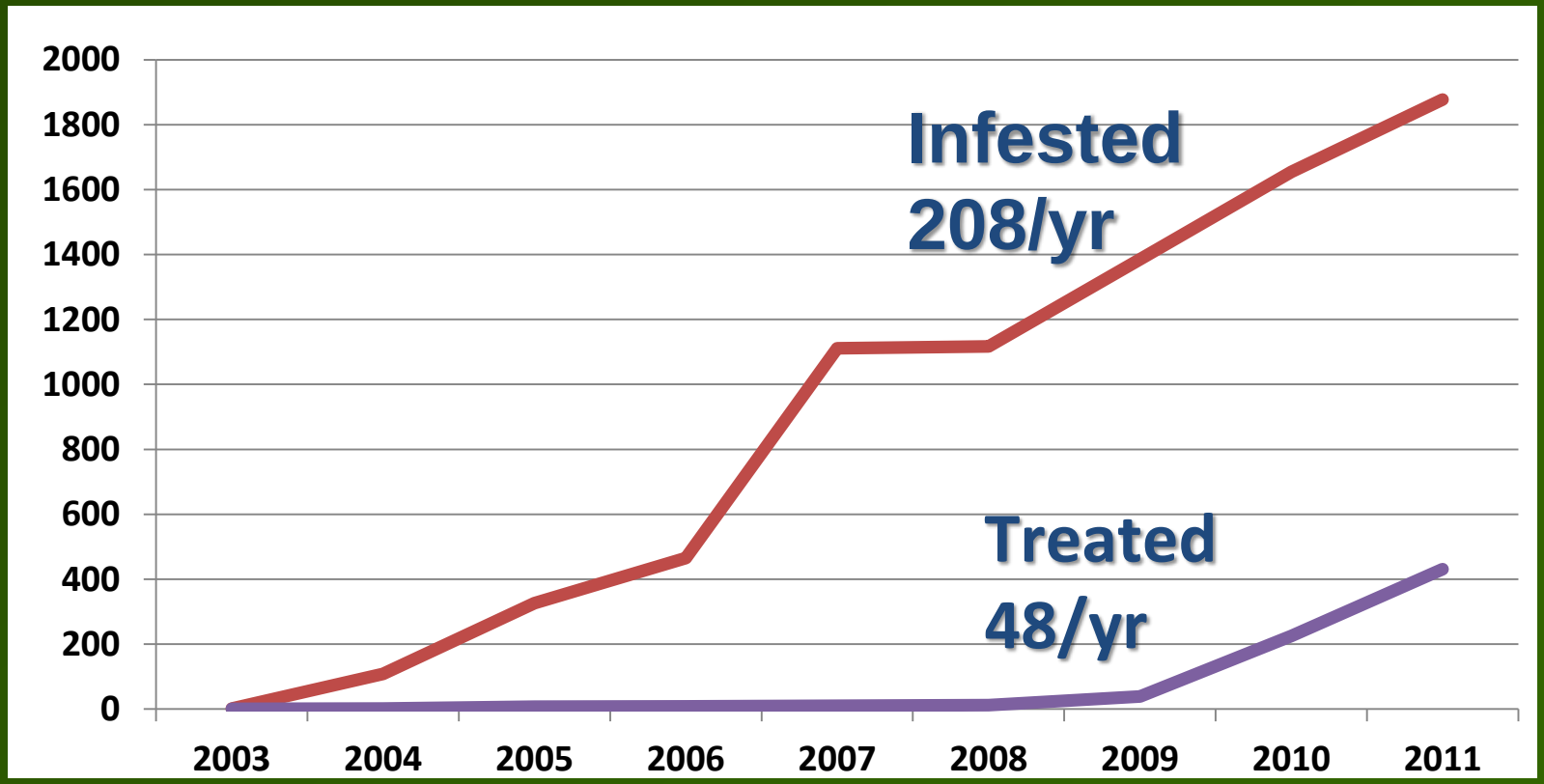
Daniels Lake
KENWR, AK-DNR
1 public boat launch
403 acres
full lake treatment

Stormy Lake
>136 private parcels
>4 private floatplanes
688 acres
partial lake treatment

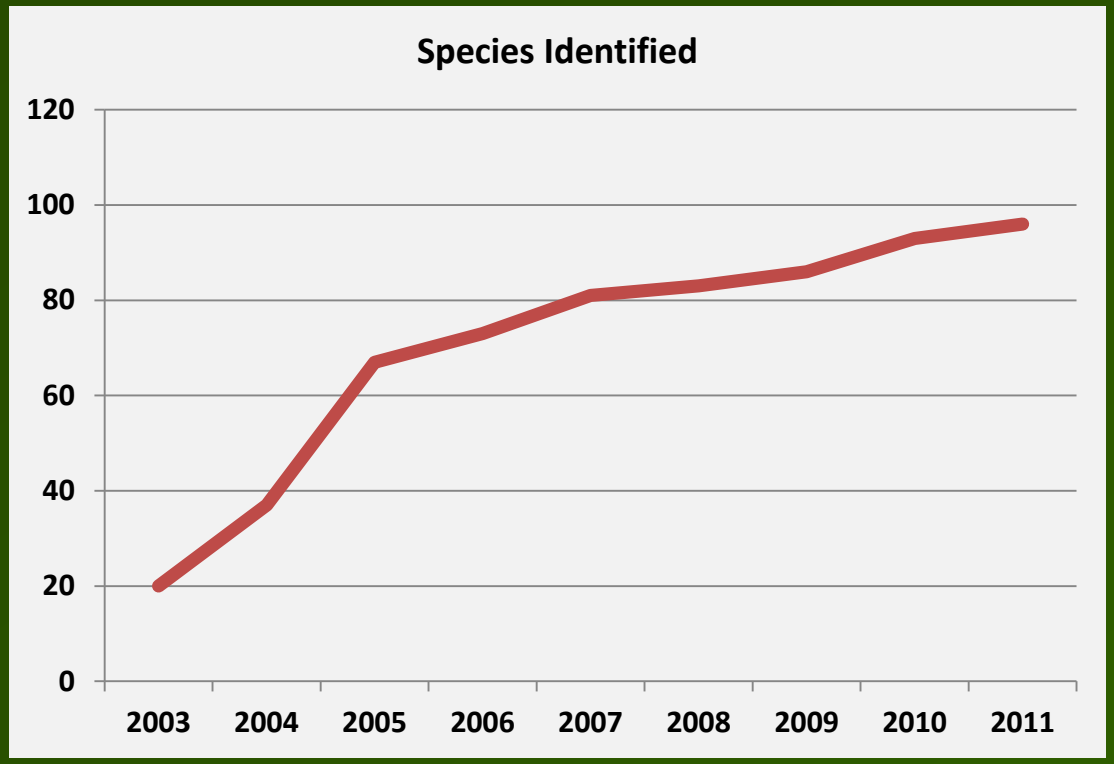
Elodea eradication is being fast tracked

Sep 2012	Discovered in Stormy Lake
Oct 2012	Surveyed in Stormy Lake
Oct 2012	Discovered in Daniels Lake
Feb 2013	Surveyed in Daniels Lake
Feb 2013	Public landowner meeting
Mar 2013	1st meeting of Elodea technical working group
Apr 2013	DEC permit application for Diquat
May 2013	presentation to KPB Assembly
Jun 2013	begin surveys of other lakes
July 2013	begin chemical treatment

BUT ARE WE WINNING??



Cumulative acres reported in AKEPIC for Kenai Peninsula

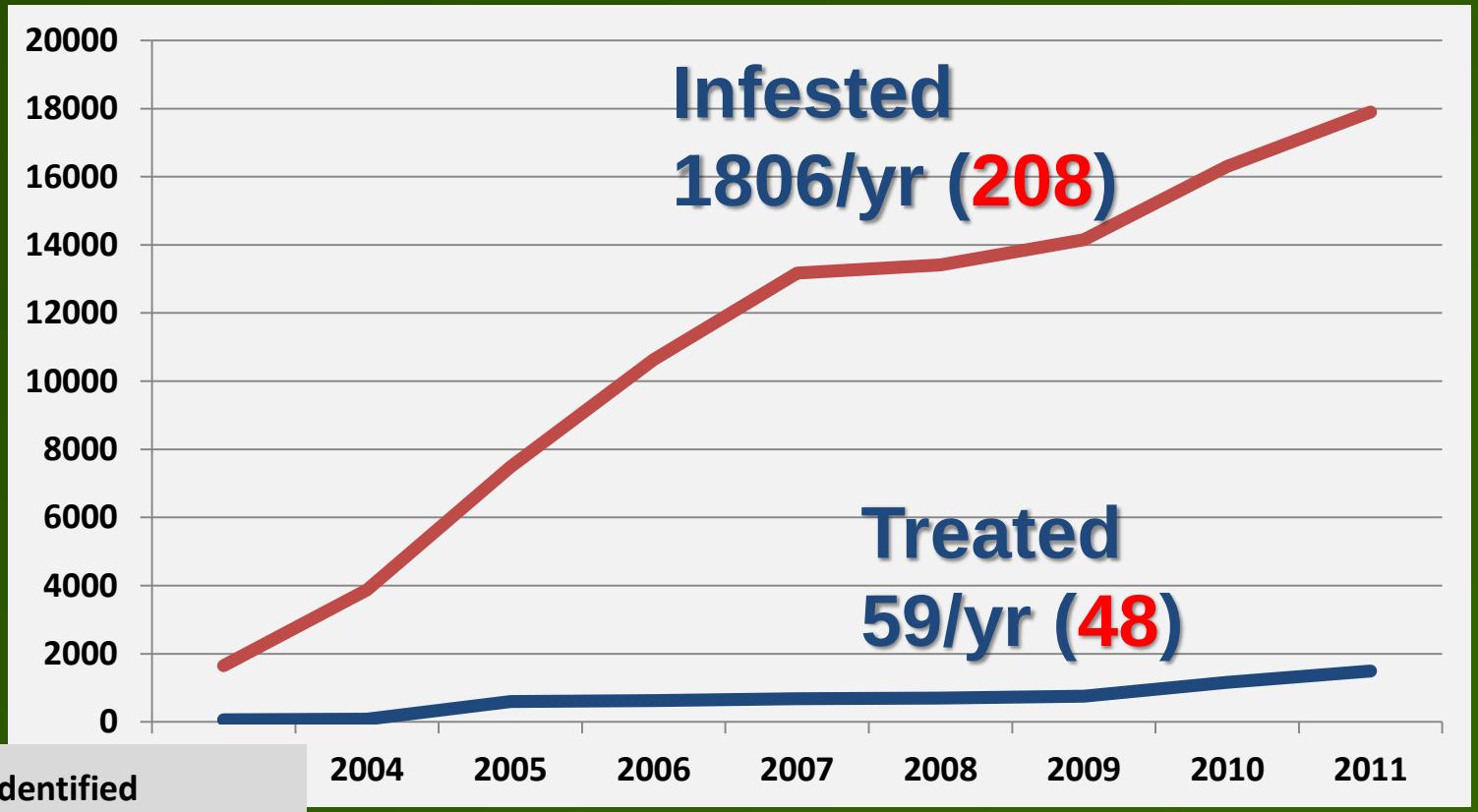


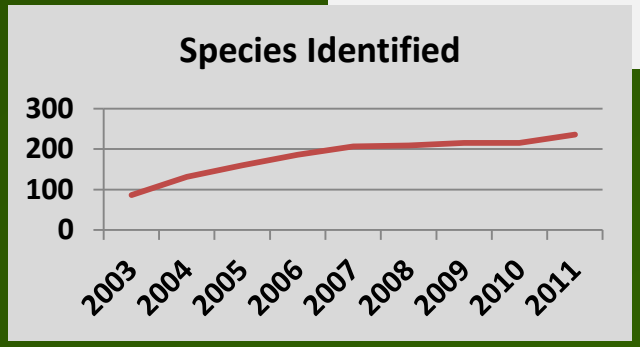
Minus 4 species…

Spotted knapweed
Scotchbroom
Columbia ragwort
German madwort

112 exotic species on KP
73 on KENWR
18 AKNHP ranking >60
9 AK noxious weeds

And it looks worse statewide…





~50% of exotic species in AK occur on KP

KP-CWMA Management Goals - 2007

Common name	Chugach NF	Kenai NWR	Kenai Fjords NP	Homer SWCD	Kenai SWCD	Alaska SWCD
bird vetch	eradicate	eradicate		eradicate	contain	eradicate
bull thistle				eradicate		
butter and eggs	control	eradicate	eradicate	contain	contain	
Canada thistle				eradicate	eradicate	
cheat grass		**				
common tansy	control	eradicate		eradicate	eradicate	
hempnettle (spp.)	control	contain		contain	contain	
meadow hawkweed (H. caespitosum)		contain				
mouseear hawkweed (H. pilosella)					eradicate	
narrowleaf hawkweed (H. umbellatum)	eradicate	control			contain	
orange hawkweed	eradicate	eradicate		contain	contain	
ornamental jewelweed					eradicate	
oxeye daisy	control	eradicate	eradicate	contain	contain	
perennial sowthistle	eradicate			eradicate		
quackgrass	control	contain		contain	contain	
reed canarygrass	eradicate	control		contain	contain	
scentless false mayweed	control	eradicate		eradicate	eradicate	eradicate
scotchbroom		eradicate			eradicate	
spotted knapweed					eradicate	
white sweetclover	control	contain		eradicate		
yellow sweetclover	control	eradicate				eradicate

KP-CWMA Management Goals - 2013

Default management goal for any exotic plants new (or newly re-introduced) to the Kenai Peninsula is eradication by the most appropriate method

Common name	Scientific name	ERADICATE	CONTAIN
Bird Vetch	Vicia cracca	X	
Bull Thistle	Cirsium vulgare	X	
Butter and Eggs	Linaria vulgaris		X
Cattail	Typha latifolia	X	
Creeping thistle	Cirsium arvense	X	
Cheatgrass	Bromus tectorum	X	
Common Tansy	Tanacetum vulgare	X	
Meadow hawkweed	Hieracium caespitosum	X	
Ornamental jewelweed	Impatiens glandulifora	X	
Oxeye daisy	Leucanthemum vulgare		X
Perennial Sowthistle	Sonchus arvensis	X	
Quackgrass	Elymus repens		X
Reed canarygrass	Phalaris arundinacaea		X
Scentless false mayweed	Tripleurospermum inodorum	X	
Scotchbroom	Cytisus scoparius	X	
Spotted knapweed	Centaurea stoebe	X	
Waterweed	Elodea canadensis & nuttallii	X	
Yellow/White sweetclover	Melilotus officinalis	X	

KENAI PENINSULA - CWMA

Cooperative Weed Management Area

New yardstick to measure success

- ✓Rather than acres or
  # infestations treated

- ✓ Space kept pristine (KP, watershed, land management unit)

AND WE NEED TO KEEP IT THAT WAY!

Questions????