

Fox, Lori

From: Margaret_Carfioli@nps.gov
Sent: Friday, February 08, 2008 12:24 PM
To: Fox, Lori
Subject: RE: Invasives Follow-up

Hi Lori,

Now that I have a moment to type what we discussed on the phone the other day...

The Natural Resource Manager at the time the NR-MAP 1994 was being compiled reported 220 acres impacted by exotic plant species and that there were 2 exotic plant species present.

I also found handwritten notes for CAHA's NR-MAP 2002 (Natural Resource Management Assessment Program) which reports that the Natural Resource Manager at the time calculated 12,770 acres impacted by exotic plant species and that there were 37 exotic plant species present at CAHA. I don't know if these are the final numbers reported to the Regional Office, but I can find out.

I think it is safe to say that the 228 exotic plant species present at CAHA is correct. The data source is NPSpecies, which is a database where reports of species are compiled. The estimate of at least 800 acres of Phragmites is a best guess based on examination of aerial photos. We will know more about the presence, abundance, and distribution of exotics at CAHA by Summer 2009.

Thanks,
Meghan

Meghan Carfioli
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Fox, Lori

From: Margaret_Carfioli@nps.gov
Sent: Friday, February 08, 2008 6:56 AM
To: Fox, Lori
Subject: Re: Invasives Follow-up

Hi Lori,

Here are CAHA's permit conditions related to vegetation, re-seeding and invasives from our Special Use Permit with NCDOT for the replacement of 7 bridges on Ocracoke. The last one addresses the washing of vehicles.

The permittee will exercise particular care to avoid disturbing or destroying wildlife and vegetation.

Equipment utilized during the Project shall be strategically placed and operated as to avoid damage to ocean side dunes and/or marsh habitat. Equipment will not be permitted to operate from or on the beach.

Within the construction limits shown on the Plans for the Project, appropriate measures will be taken to minimize damage or disturbance of vegetation and soil. The disturbed areas will not be re-seeded unless required by the Superintendent with the exception being the road shoulder.

A meeting between the NCDOT and Service representatives must occur on-site to review and approve materials and acceptable plant species prior to planting cover on the road shoulder.

Upon expiration or termination of this permit, the permittee shall restore the site as nearly as possible to its natural state, under the direction of the Superintendent or his designee. Restoration to any damaged areas will include but not be limited to vehicluar tracks being raked smooth, holes filled, and native vegetation restored.

All construction vehicles will be pressure cleaned with water prior to arriving at and departing from the construction site to minimize the potential for introducing exotic plant species.

Thanks,
Meghan

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To: <Margaret_Carfioli@nps.gov>
cc:
Subject: Invasives Follow-up

02/07/2008 10:44
AM EST

Hey Meghan,

0020444

FEB. 6. 2008 2:20PM

NATIONAL PARK SERVICE

NO. 303 P. 1

CAHA 1213
1212

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Fax

To: LORI FOX From: MEGHAN CARROLL

Fax: 303 984 4942 Date: 2/6/08

Phone: 303 985 6602 Pages: 8

Re: CAHA Exotic Plants CC:

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•Comments: [Click here and type any comments]

Theresa Gedrock (Congaree Swamp NP)
faxed this to me; her original fax cover
sheet is attached just FYI.

Thanks!
Meghan

Notes on Invasive Exotic Plants in Cape Hatteras National Seashore

Jake Hughes, NPS Volunteer in the Park
12345 Shadetree Lane, Laurel, MD 20708, jah3r@excite.com

The following is a list of invasive non-native vascular plants that occur in, or in close proximity to, Cape Hatteras National Seashore (CAHA). For the purposes of this report, a plant is defined as 'non-native' if it has evolved in an area outside of CAHA (and generally outside the continental U.S.) and has been transported there by anthropogenic means. These species are deemed 'invasive' because they are considered as such in other areas, and/or because they appear to be establishing in relatively undisturbed plant communities in CAHA. Information on the invasiveness of the species below was taken from state invasive plant lists, a compilation of which can be found at www.invasive.org. Though North Carolina maintains a list of regulated noxious (mostly agricultural) weeds, it currently does not have a list of invasive plants of natural areas. The southeastern state(s) listing a given species as invasive are noted in 'Sources' in each species account. The species included were observed in the area during field excursions in Sept-Oct 2004, primarily on Hatteras Island, or were mentioned in earlier reports (i.e. Stalter and Lamont (1997); Gaddy (1985)). Note that this is not based on an exhaustive survey of invasive exotic plants in CAHA.

Albizia julibrissin (mimosa)

Origin: Asia

Sources: GA, SC, FL, TN, KY, VA, USFS

Invades: forest edges

Gaddy (1985) reports finding a single plant on Ocracoke Island. This species, though considered invasive elsewhere, probably presents little threat in CAHA, except possibly in disturbed, protected (i.e. forested) sites in close proximity to seed sources.

Management Considerations: None, though it should probably be monitored for spread.

Arthraxon hispidus (purpleheart grass)

Origin: Asia

Sources: TN, KY, VA, USFS

Invades: Sunny-partially shaded, moist-wet soils.

Well established at the north edge of Jeannette Sedge, along the trail west of the British cemetery in Buxton, and along the sand road east of the Frisco Campground. This annual grass forms dense stands that have the potential to displace less competitive native species. A number of rare and uncommon species (e.g. *Ludwigia repens*, *Lilaeopsis carolinensis*) occupy similar habitat in CAHA and could possibly be impacted by this aggressive species.

Management Considerations: Monitor for spread or establishment of new populations. Remove (hand pulling is possible) patches encroaching on rare species.

Arundo donax (giant reed)

Origin: India

Sources: GA, SC, TN, VA

Invades: mesic-wet, open soils

Observed along Hwy 12 in northern Avon, just south of NPS property. Stalter and Lamont (1997) report that it is 'persistent after cultivation at Hatteras.' It is not known if it occurs within CAHA. This species, a large grass similar in appearance to *Phragmites australis*, could have similar impacts if allowed to establish.

Management Considerations: Monitor for establishment within CAHA. If possible, work with park neighbors to eradicate established populations.

Carex kobomugi (Japanese sand sedge)

Origin: Asia

Sources: VA

Invades: dunes

Carex kobomugi is established at the south end of Bodie Island, around the Oregon Inlet campground. This rhizomatous sedge forms dense stands that could potentially impact dune communities and overwash areas, and alter habitat for rare species such as *Amaranthus pumilus* and *Polygonum glaucum* (Lea and McLaughlin 2002). Though apparently slow to establish, this species is reportedly extremely difficult to remove.

Management Considerations: Removal of the Oregon Inlet population would likely require repeated herbicide applications or much digging and disturbance. Monitor for spread or establishment of new populations.

Elaeagnus pungens (thorny olive)

Origin: Asia

Sources: SC, FL, TN, VA, USFS

Invades: forests, thickets

Stalter and Lamont (1997) report that this species is 'infrequent, but spreading.' They don't provide any locations; it is unknown whether it occurs within CAHA. An *Elaeagnus* sp. (possibly *E. pungens*, though I haven't stopped to look) occurs on the soundside of Hwy 12, north and south of ramp 30. At least 6 shrubs are visible from the road, and scattered along approx. ½ mile. Very little information is available on this shrub, though it is known to invade forested areas.

Management Considerations: Eradicate. *Elaeagnus* spp. may be spread widely by birds and the potential for increase in density and/or size of this population is potentially high. Though *Elaeagnus* are often deeply rooted, it may be possible to cut the shrubs back and dig them out of the sandy soil found here. If not, cutting individuals to the ground, immediately followed by application of an herbicide to the cut stump can be effective.

Eragrostis curvula (weeping lovegrass)

Origin: ?

Sources: SC, VA, USFS

Invades: grasslands

Stalter and Lamont (1997) report that this grass is frequent along roadsides. It is commonly planted in such areas and is known to establish in natural areas.

Management Considerations: This species was not encountered in natural areas in CAHA, though various sources suggest that it should be monitored for spread.

Eremochloa ophiuroides (centipede grass)Origin: Asia?Sources: noneInvades: dunes, forest openings

Though not mentioned in earlier reports, this creeping grass was found in many locations during 2004 fieldwork. This species is often recommended for lawn plantings in coastal areas. In CAHA, it is most abundant in stable dune areas along roads (e.g. many locations along Hwy 12 between Salvo and Avon) and in other disturbed areas (e.g. Oregon Inlet and Frisco Campgrounds), but was also occasionally found in more natural situations, such as in the secondary and older dunes between Hatteras Village and Hatteras Inlet.

Virtually no information exists at the present time on the ecological effects of this species in natural areas. However, its ability to form lawn-like patches in otherwise sparsely vegetated plant communities in dunes and forest openings suggests that it has the potential to significantly alter these habitats. The rare *Trichostema* sp. 1 occupies these areas and could potentially be affected by this non-native.

Management Considerations: Because no information appears to be available on this species and because it is already well established in CAHA, its effects on native plant communities should be monitored. Established populations should be monitored for spread. Removal of small, isolated populations is probably practical by hand pulling. Use of this species by maintenance staff and park neighbors should probably be discouraged.

Hedera helix (English ivy)Origin: EuropeSources: GA, SC, TN, KY, VA, USFSInvades: forests

Stalter and Lamont (1997) report an occurrence of this species south of Buxton. It is also being controlled in a preserve on Ocracoke Island (Lee Patrick, Invasive Plant Control, Inc, pers. comm.) It is not known whether it occurs within CAHA. This plant presents a threat to forested areas, where it can blanket the forest floor, crowding out herbs and woody seedlings, and can climb on trees, making them more susceptible to wind throw and injury by insects or pathogens that colonize the protected area between the vine and the tree trunk.

Management Considerations: Locate populations outside CAHA and monitor for establishment within CAHA forests.

Lespedeza cuneata (Sericea lespedeza)Origin: JapanSources: GA, SC, TN, KY, VA, USFSInvades: open areas in forest and scrub

This species is widely scattered throughout CAHA. In 2004, it was encountered on the soundside of Hwy 12 just south of Avon, along the road to the park offices in Buxton, along the trail behind the British cemetery in Buxton, and along the eastern boardwalk at the Frisco campground. It is commonly planted for erosion control along roadsides.

Management Considerations: Monitor established populations for spread and for establishment of new populations.

Ligustrum amurensense, *Ligustrum vulgare* (privets)

Origin: (*L. vulgare*) China

Sources: (*L. vulgare*) TN, KY, USFS

Invades: forests

Stalter and Lamont (1997) report these species as persistent after cultivation and as rare. It is not known whether either occurs within CAHA. These non-natives can form dense stands in the understory of forests.

Management Considerations: Monitor for establishment in CAHA forests.

Lonicera japonica (Japanese honeysuckle)

Origin: Japan

Sources: MS, GA, SC, IL, TN, KY, VA, USFS

Invades: forests, thickets

This species is a threat to forests and shrublands, where it can crowd out native herbs and strangle shrubs and small trees. Though widespread both locally and regionally, it does not appear to be abundant anywhere in CAHA. It tends to thrive in disturbed situations.

Management Considerations: Monitor established populations for spread, especially following disturbance of occupied habitat.

Melia azedarach (Chinaberry)

Origin: Asia

Sources: GA, SC, FL, TN, VA

Invades: forests

Stalter and Lamont (1997) report this species is an infrequent escape from Buxton to Hatteras. It is unknown whether it occurs in CAHA. This shrub or small tree is an invader of forest edges and disturbed areas throughout the southeast. It forms dense thickets that displace native vegetation. The seeds are reportedly spread by birds that eat its abundant fleshy fruit.

Management Considerations: Locate established populations and monitor for establishment in CAHA. If possible, encourage owners of invaded areas to remove this species.

Microstegium vimineum (stiltgrass)

Origin: Asia

Sources: AL, GA, SC, TN, KY, VA, USFS

Invades: mesic forests, meadows

This highly invasive annual grass was observed in the Buxton Woods Coastal Preserve off of Hwy 12, just north of CAHA. It is growing in a ditch along the preserve access road, near the edge of the first wetland. This species has the potential to form dense stands that displace most native herbaceous species.

Management Considerations: Encourage Coastal Preserve Managers to eradicate this species. Monitor for establishment in CAHA, particularly along shaded roadsides and trails (e.g. Buxton Woods Trail).

Phragmites australis (common reed)Origin: Europe and native (see note)Sources: AL, SC (law), GA, SC, TN, KY, VAInvades: fresh and brackish marshes, mesic-wet shrubland

This conspicuous non-native is well established in CAHA. In 2004, it was observed in several spots in ditches on the soundside of Hwy 12 between Salvo and Avon, in large stands on the soundside of Hwy 12 just north and south of Avon, and near the end of Pole Rd near Hatteras Inlet. It has the potential to form monospecific stands that eliminate more desirable native wetland vegetation. Once well established, it is extremely difficult to eradicate. **Note: It is believed that invasive *P. australis* represents an introduced strain of the species. A native variety exists, and care should be taken to ensure that the indigenous *P. australis* is not present before control efforts are undertaken.**

Management Considerations: Minimize disturbance of wetland areas. Monitor large populations (e.g. Avon vicinity) for spread. If possible, eradicate small, isolated patches (e.g. at Hatteras Inlet).

Vinca major (bibleaf periwinkle)Origin: EuropeSources: SC, VAInvades: forests

Stalter and Lamont (1997) report that this species occurs as an escape along a roadside in Buxton. It is not known whether it occurs within CAHA. This evergreen groundcover, though not highly invasive, can spread from plantings or dumped cuttings into forested areas. It forms patches of dense growth that can eliminate most native herbs.

Management Considerations: Locate established patches and monitor for establishment in CAHA. Encourage owners of invaded areas to remove the plant.

Additional Species

These invasive non-native species, for reasons noted in each account, are apparently less immediate threats than those listed above. They should, nevertheless, be monitored for in CAHA.

Cytisus scoparius (Scotch broom)

Stalter and Lamont (1997) report this species from the Nags Head Woods vicinity. A serious invasive in the western U.S., it may present little threat to CAHA.

Lythrum salicaria (purple loosestrife)

Stalter and Lamont (1997) report a single population of this plant in a marsh near Duck. This aggressive invader of fresh marshes should be watched for in the parks freshwater wetlands, such as Jeannette Sedge.

Pueraria lobata (kudzu)

Burk (1961) reported this species from the Nags Head area, though Stalter and Lamont (1997) could not locate it. This well known and highly conspicuous invader of forest

edges and openings does not have great dispersal ability from established patches, so even in the unlikely event that it is still present, it likely presents little threat to CAHA.

Vitex rotundifolia (beach vitex, beach kudzu)

Efforts to eradicate this creeping, low shrub from coastal dunes in South Carolina recently made national news (Jordan 2004). It was planted in the early 1990s in an effort to stabilize dunes damaged in Hurricane Hugo and has proven an aggressive invader that overwhelms native dune flora. Anecdotal reports suggest it may interfere with nesting sea turtles. It has spread as far north as Figure Eight Island in N.C. A web search for this species yielded a nursery in the Virginia Beach area touting the dune stabilizing ability of this native of the Pacific Rim.

References

- Burk, C. J. 1961. A floristic study of the Outer Banks of North Carolina. Unpublished Ph.D. Dissertation, University of North Carolina, Chapel Hill, N.C. 123 p
- Gaddy, L. L. 1985. Rare, endangered, threatened and exotic plants of the Cape Hatteras National Seashore. CPSU Technical Report No. 18. National Park Service Cooperative Park Studies Unit, Institute of Ecology, University of Georgia, Athens, GA. 32 p.
- Jordan, J. 2004. 'Beach kudzu' threatens South Carolina dunes, plants. AP Wire story, October 5, 2004.
- Lea, C. and G. McLaughlin. 2002. Asiatic Sand Sedge (*Carex kobomugi* Ohwi) fact sheet on the Alien Plant Working Group website (www.nps.gov/plants/alien/fact/cako1.htm).
- Stalter, R. and E. E. Lamont. 1997. Flora of North Carolina's Outer Banks, Ocracoke Island to Virginia. Journal of the Torrey Botanical Society 124 (1): 71-88.

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FEB. 6. 2008 2:21PM

NATIONAL PARK SERVIC

NO. 303 P. 8



Congaree National Park



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Theresa_Yednock@nps.gov

Fax

To: Megan Carfoli, CAHA **From:** Theresa Yednock, CONG

Fax: (252) 473-2595 **Pages:** 6 + cover

Phone: (252) 473-2111 x135 **Date:** January 22, 2008

Re: Phone conversation 1/22/08, Invasives **CC:**

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• **Comments:**

Notes on Invasive Exotic Plants in Cape Hatteras National Seashore by Jake Hughes

Jan. 22 2008 01:53PM P. 1

FAX NO. : 803-783-4241

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