

Notes on 9/21/07 phone conversation between Tom Flanagan and Sue Cameron, Waterbird Biologist, North Carolina

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Sue's experience with habitat creation/enhancement projects has been limited to work on dredge material islands aimed at habitat for colonial nesting birds. A report detailing such a project is attached at the end of these notes.

Sue's take on such projects is that they are "short-lived and labor intensive." Most techniques for clearing vegetation are only effective for one season before vegetation returns. She has been involved with several different methods for vegetation clearing:

- Hand pulling
- Herbicides – vegetation typically returns after one season
- Fires – typically didn't carry very well
- Bulldozing – in turning over soil, this method tends to spread seed matter, allowing vegetation to return rather quickly

In areas treated by a covering over with new dredge material, vegetation can be prevented from returning for 4-7 years. Sue's overall take is that habitat enhancement/creation is less effective than preserving existing quality habitat.

In terms of habitat creation/enhancement projects for PIPLs, Sue has not been involved in any. However, she is hoping to do some work with creation of ephemeral pools to provide PIPL foraging habitat. The Nature Conservancy in New Jersey has been involved with such work.

Sue had a couple of suggestions on contacts for more information on habitat creation:

Monomoy NWR in MA has done some work for common terns

Walker Golder of N.C. Audubon has done some work for common terns

(See page below for contact info)

Hi Tom,

I've attached the report I wrote for some work we did on one of the dredge material islands that we manage for colonial nesting waterbirds. I forgot to mention that others have also tried covering vegetation with landscape fabric and treating vegetation with salt, I believe with similar short term results. Dave Brinker with the state of MD (dbrinker@bellatlantic.net) has done some of this work so you might want to contact him as well. Below are some additional contacts.

Vegetation removal

Walker Golder (NC Audubon) - WGOLDER@audubon.org

Stephanie Koch (Monomoy NWR) - Stephanie_koch@fws.gov

Ephemeral pool creation

NJ TNC - not sure of best person to contact here

David Rabon/Ann Hecht (USFWS) may know of some additional contacts on this -
David_Rabon@fws.gov, Anne_Hecht@fws.gov

**New Dump Island Habitat Enhancement
Final Report**

*Grant Agreement Between
U.S. Department of the Interior
Fish And Wildlife Service And
North Carolina Wildlife Resources Commission
Agreement No. 401813G211*

Susan Cameron
North Carolina Wildlife Resources Commission
Dec. 31, 2005

Introduction:

Barrier beach development and associated beach stabilization along North Carolina's coast has significantly diminished the quantity and quality of early successional (bare sand/shell with little or no vegetation) nesting habitat for colonial waterbirds. Nesting numbers of species that require early successional habitat, such as black skimmers (*Rynchops niger*), gull-billed terns (*Sterna nilotica*) and common terns (*Sterna hirundo*), have shown dramatic declines over the years (NCWRC 2004). All are state listed with common terns and black skimmers listed as species of special concern and gull-billed terns listed as threatened. In addition, gull-billed terns and black skimmers are listed as species of high conservation concern in the *North American Waterbird Conservation Plan* (Kushlan et al 2002). Dredged material islands have become important as alternative nesting sites for colonial waterbirds (Parnell and Soots 1975, Soots and Parnell 1975). In fact, over 68% of all of the colonial waterbirds tallied during a 2004 coast-wide survey were found on dredged material islands (NCWRC 2004).

There is growing concern over the deteriorating condition of some types of habitat on dredged material islands. Early successional habitat quickly succeeds to grasses and shrubs and while it has always been a challenge to maintain some early successional habitat on dredged material islands, it has become even more so in recent years. The best way to maintain early successional habitat is to place new material on the islands and cover existing vegetation. The life span of early successional habitat created by the placement of dredged material can be four to seven years (Soots and Parnell 1975). The US Army Corps of Engineers (USACOE) has received limited funding to dredge waterways in recent years and many of the most important nesting islands in the state are becoming completely vegetated. In addition, there is a growing demand by coastal communities for the limited amount of material that is dredged to be placed on beaches to protect structures.

The difficulties with getting dredged material to islands have prompted us to look at other means of creating early successional habitat. There has been some experimentation with other methods such as bulldozing and hand pulling and these have been met with mixed results (D. Allen pers. comm.). Often alternative methods of habitat creation are short lived, but they are necessary in lieu of placement of dredged material on the islands to retain some early successional nesting habitat for waterbirds of high conservation concern. Our ability to maintain suitable habitat on these islands will have a huge impact on the state's breeding populations of colonial waterbirds.

New Dump Island (Figure 1), located off the Town of Atlantic in Core Sound, has experienced a loss of bare sand/shell habitat in recent years and a corresponding loss in nesting terns and skimmers. In 2001 there were 38 pairs of black skimmers, 87 pairs of gull-billed terns and 53 pairs of common terns nesting on New Dump Island. None of these species could be found nesting on the island by 2002 due to loss of early successional habitat to encroaching vegetation. The colony of royal and sandwich terns had also decreased from 2690 and 1043 nesting pairs respectively in 2001 to 450 and 9 pairs respectively by 2003. The goal of the New Dump Habitat Enhancement Project is

to create early successional habitat on the island so that nesting terns and skimmers will return. New Dump Island is in a key location and can provide nesting sites free of mammalian predators and relatively free of human disturbance. Plans to create early successional habitat included hiring a contractor to reduce vegetation on ~1.5 acres of the island.

Project Implementation:

To enhance habitat on New Dump Island, North Carolina Wildlife Resources Commission (NCWRC) hired a contractor to treat three plots or a total of 1.5 acres with herbicides and fire. Brown pelicans, which nest in grass and shrubs, also breed on the island and treatment plots were selected so as not to destroy any of the pelican nesting habitat. Areas of the island that were historically used by early successional nesters were chosen. Plots were selected and marked with flagging and stakes and were located on the dome of the island, along the east shoreline and along the south shoreline. Vegetation within the plots consisted primarily of grasses and forbs along with some shrubs including the invasive Mexican Tea. Rodeo was selected as the herbicide and the plots were treated in April of 2004. A prescribed burn of the plots was completed in February of 2005. The treatments were timed to benefit waterbird habitat while avoiding the nesting season, which runs from April through August. We conducted a series of site visits before and after treatments in an effort to monitor nesting and succession of vegetation in the plots.

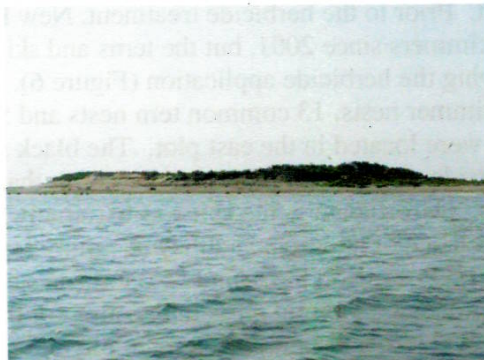


Figure 1. New Dump Island.

We had planned on applying a second herbicide treatment in the fall of 2004 or spring of 2005. The second treatment was never applied due to a number of factors. First, stormy weather during the fall of 2004 and spring of 2005 prevented treatment during the narrow windows within the growing season, but outside of the bird nesting season. Second, the island was heavily impacted from nor'easters in the spring of 2005 and from Hurricane Ophelia the following fall. As a result, much of the treatment areas were severely eroded and it was determined that further herbicide treatment would cut into the pelican nesting habitat (Figure 2).

A

B



Figure 2. Erosion on New Dump Island (A – East side, B – West side).

Table 1. Financial Contributions.

	USFWS	NCWRC	Total
Labor	\$2586.00	\$2001.00	\$4587.00
Mileage	\$337.00		\$337.00
Supplies	\$682.00		\$682.00
Overhead	\$280.00	\$561.00	\$841.00
Total	\$3885.00	\$2562.00	\$6447.00

Results and Conclusions:

Figures 3-5 show photos of plots before and after treatment on New Dump Island. The 2004 spring herbicide treatment was successful in temporarily opening up early successional habitat. Prior to the herbicide treatment, New Dump Island had not hosted nesting terns and skimmers since 2001, but the terns and skimmers both returned immediately following the herbicide application (Figure 6). A count in May of 2004 yielded 11 black skimmer nests, 13 common tern nests and 5 gull-billed tern nests. The common tern nests were located in the east plot. The black skimmers and gull-billed terns nested just outside of the south plot on a sandy spit that had been forming over the past couple of years. Unfortunately, the spit was extremely low, leaving nests vulnerable to flooding. The presence of additional adults and empty scrapes suggested that more pairs were planning on nesting on the island. No terns nested in the south plot although a few pairs of pelicans decided to build nests in this area for the first time (Figure 6). Unfortunately, the royal tern and sandwich tern colony did not rebound after the treatment but herbicide application may have prolonged use of the island as they did continue to nest in low numbers in the dome plot. A total of 150 royal tern nests and 2 sandwich tern nests counted.

A

B

C

D



Figure 3. Changes in vegetation in the south plot (A – pretreatment 4/04, B – post herbicide treatment 5/04, C – post burn 3/05, D – end of growing season 8/05).

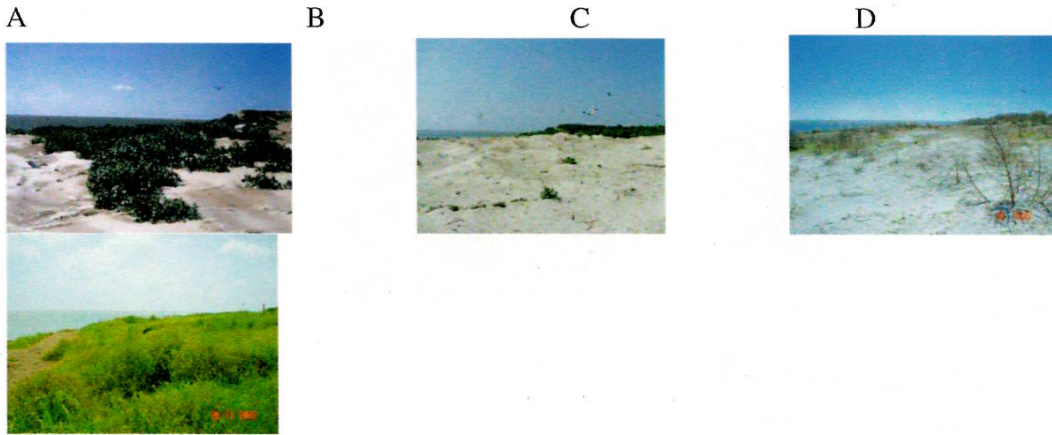


Figure 4. Changes in vegetation in the east plot (A – pretreatment 4/04, B – post herbicide treatment 5/04, C – post burn 3/05, D – end of growing season 8/05).

A B C D



Figure 5. Changes in vegetation in the dome plot (A – pretreatment 4/04, B – post herbicide treatment 5/04, C – post burn 3/05, D – end of growing season 8/05).

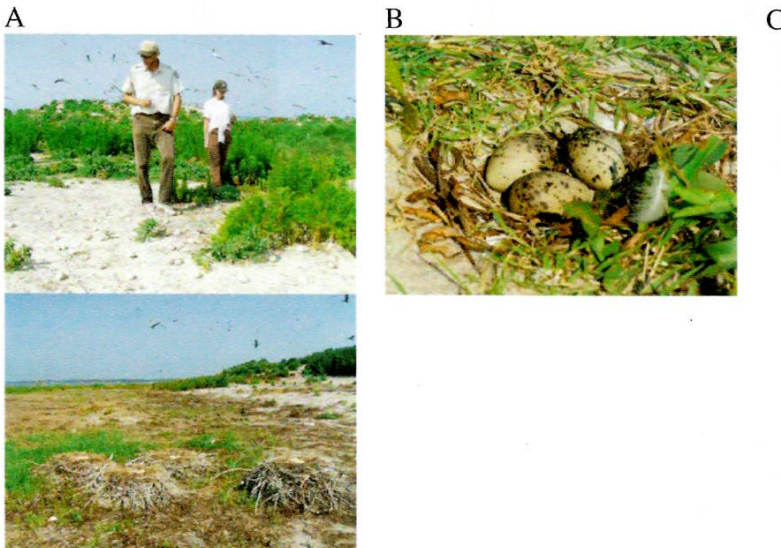


Figure 6. Bird use on New Dump Island (A- royal tern nests in dome plot 5/04, B – common tern nest in south plot 5/04, C – pelican nests in east plot 5/04).

While the herbicide treatment temporarily created early successional habitat, vegetation once again moved in by September of 2004. In fact, all three plots were almost completely covered with vegetation by our site visit in mid-September. The winter burn removed the dead vegetation and clearly knocked back remaining woody plants, but forbs and grasses came back in force in the spring of 2005. In addition, much of the habitat on the east side of the island and on the dome was lost to erosion from spring storms. Skimmers and terns were once again absent as nesters from the island in the summer of 2005.

While additional herbicide treatments would likely prolong the life of early successional habitat on dredged material islands, it is clear that they need to be reapplied regular to

keep vegetation at bay. Funds were used to purchase two back-pack sprayers so that additional attempts can be made to create bare sand habitat on New Dump and other important islands in years to come. Burning appeared to change the composition of vegetation on the island but did little to create bare sand habitat for nesting.

The fact that terns and skimmers returned to nest on New Dump immediately after the herbicide treatment indicates a need for additional nesting sites in the vicinity. We should focus our efforts on islands where good, alternative nesting sites are lacking. As previously mentioned, the best way to create early successional habitat is through the placement of dredged material on the site of interest. We will continue to push for this and look for new ways to get dredged material to the islands. In the meantime, we will continue to use the shorter term management practices such as herbicide application. While labor intensive and short lived, herbicide treatments can be an important management tool for the creation of early successional habitat on dredged material islands.

Literature Cited:

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