Enhancing Piping Plover Foraging Habitat in New Jersey

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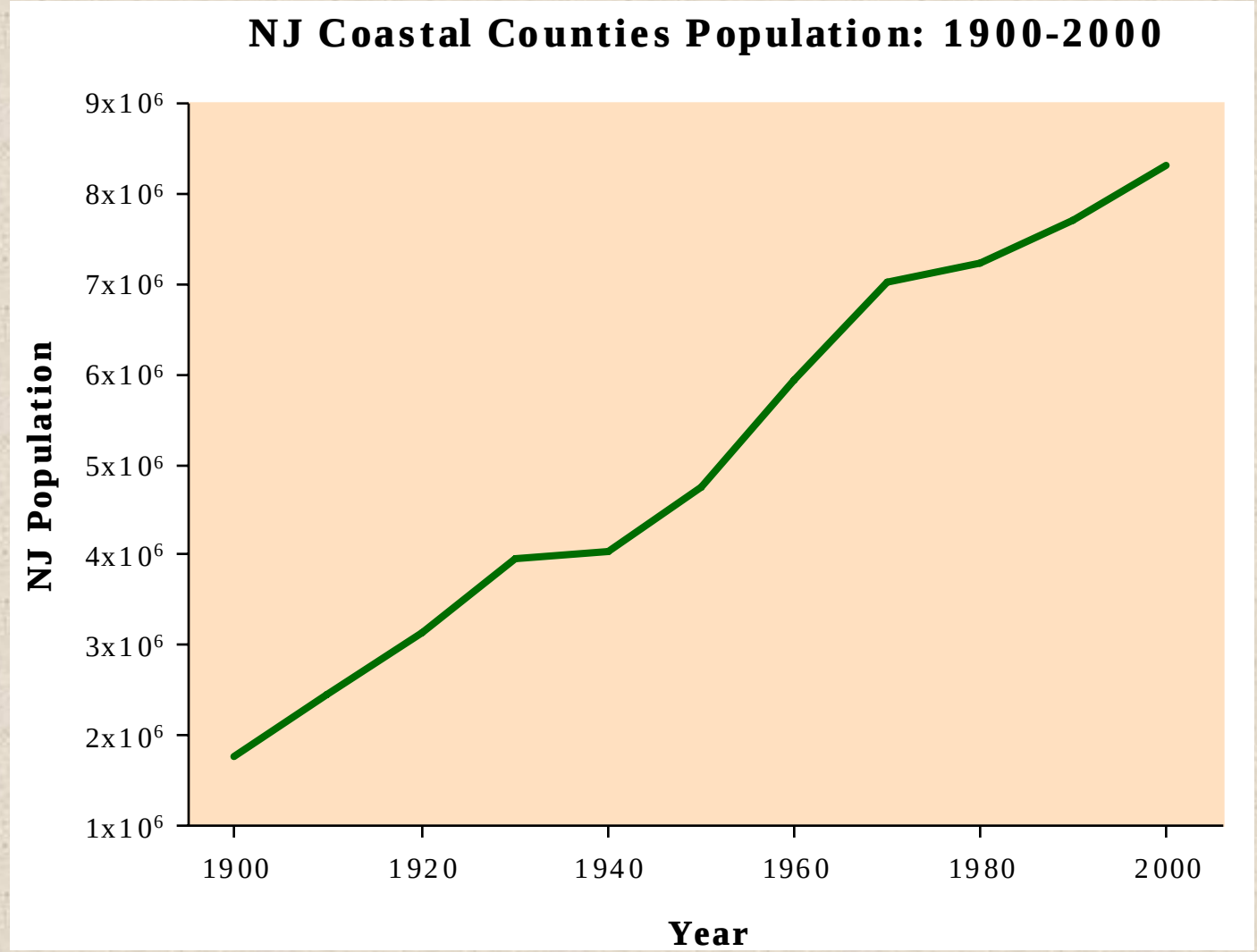
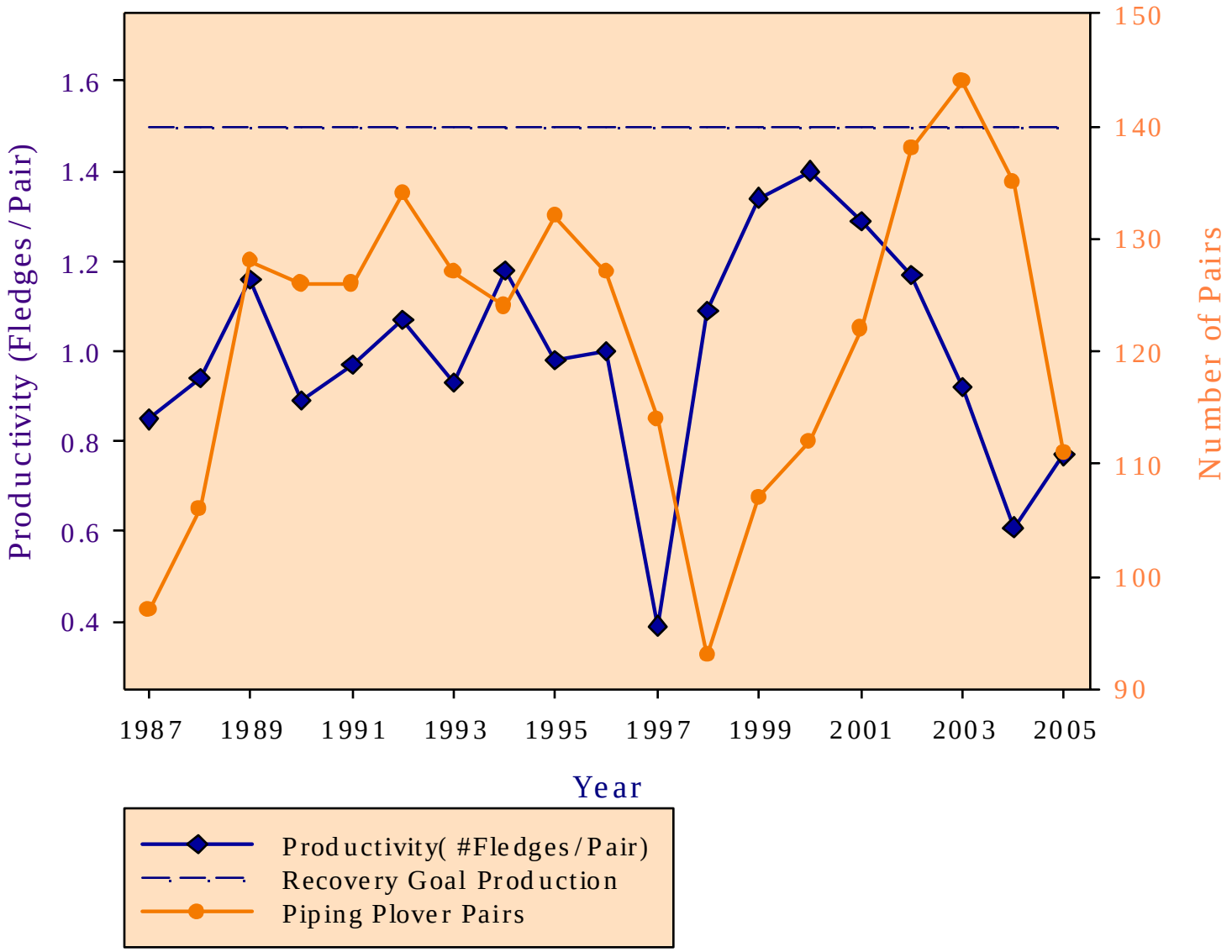


NJ has the highest population density in country, with an average of 1,030people/mile^2

Coastal counties are those defined by NOAA as those counties with at least 15% of their land area either in a coastal watershed or in a coastal cataloging unit. In NJ 20 of 21 counties fit this definition. In addition, coastal towns experience an immense influx of visitors throughout the summer season.

Piping Plover Pair Numbers and Reproductive Success: 1987-2005



In NJ, piping plovers nest on federal, state and county parks, state natural areas, federal wilderness areas, federal wildlife refuges and municipal beaches. In many cases, plovers must weave through throngs of visitors, their vehicles and / or their pets to make it to suitable foraging locations. We suspect that in some cases, plovers are unable to feed for optimal periods of time, leading to lower reproductive rates. Creation of additional foraging habitat / areas may be an effective way to reduce impacts of human disturbance so birds can devote more time to feeding and less to vigilance and evasion behaviors.

Site Selection for Enhancement Efforts

We plan to concentrate our efforts on sites that primarily have “ocean-only” foraging habitat where foraging alternatives are currently most limited. We expect that birds who nest on these “ocean-only” sites will readily accept additional foraging opportunities for two reasons:

1. The new opportunities will be fenced off from people, allowing a disturbance free zone

2. The plovers preference for ephemeral habitat when it is available has already been established. For example, when Avalon floods, birds feed in the pools left behind instead of at the shoreline. In Ocean City plovers feed at the foot of storm drain outfall pipes (which are protected by symbolic fence) rather than making their way to the intertidal zone.


Avalon berm after a flood tide


Stormwater outfall pipe in Ocean City

Benefits of Additional Foraging Habitat

A way to reestablish abandoned or underutilized nesting sites.

A method to help determine factors involved in site selection.

Corson's Inlet State Park
home to 8 nesting pairs in 1991 and 2 in 2005

Role of predators?

Large Scale Projects

Cape May Meadows

Barnegat Inlet Project

Proposed Foraging Enhancement Project at Barnegat Light

View from lighthouse

Proposed culvert from sump along edge of jetty

Tidal pool created by flow from culvert

Area of proposed vegetation removal

Piping plover corridors over existing dune

Jetty

Extent of current piping plover nesting

Small Scale Project

These projects would create foraging opportunities inside areas that are already fenced to protect nesting habitat.

They would be able to be completed in a shorter time span, would not need to be part of a larger restoration project, and would (hopefully) require fewer permits, all of which would make them easier to implement.

Small Scale Project

In 2001 and 2002, Joe Patt of The Nature Conservancy conducted an experiment similar to the one we would like to try.

1. Dug 6 experimental plots with following specs:

Length: 6 m
Width: 2 m
Depth: .25 cm
Height: 10 cm (berm around perimeter of plot)

2. Lined the plots with heavy plastic liner

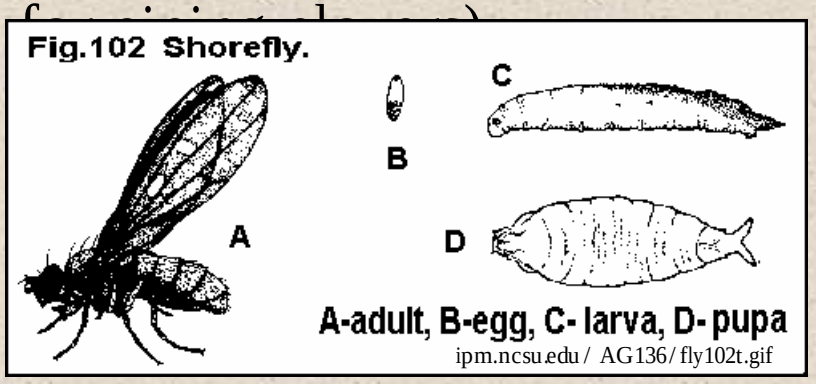
3. Added water from a nearby freshwater pond(not accessible to the birds) via a pump and garden hose every 48 hours for duration of experiment (~ 2 months). Water was added until it pooled on top of the sand.

4. Some treatments included the addition of nutrients (fresh algae and fish emulsion)

Small Scale Project

Results from Cape May Meadows Experiment

- The plots were able to attract and sustain populations of Ephydrids (shore flies in the order Diptera, which include known prey items for [illegible])



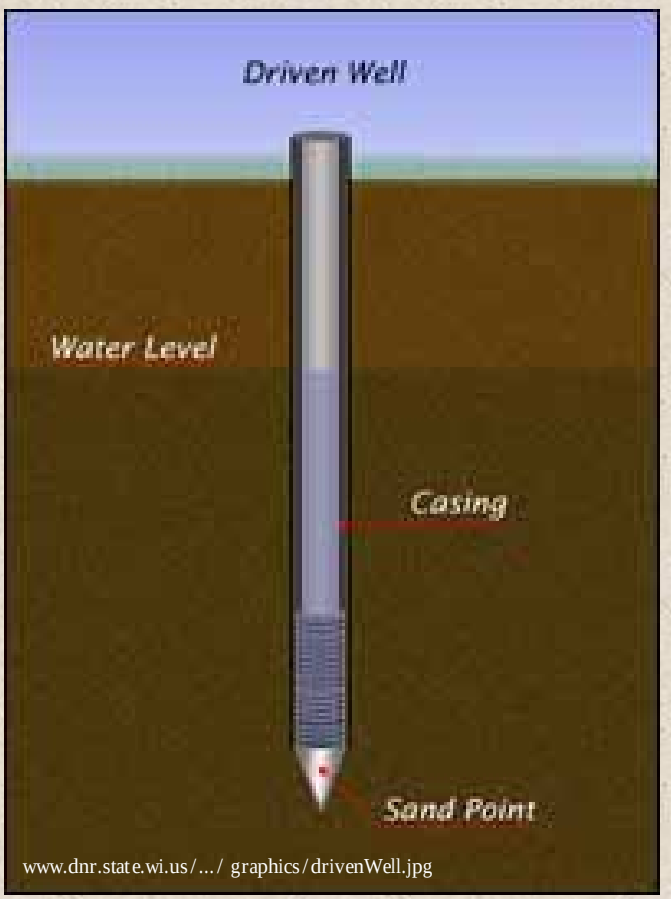
- The liners were not necessary for retention of water -- lined and unlined plots showed no difference in moisture level.

- Addition of nutrients was critical to the success of the plots in attracting the flies. Moisture alone was not enough to establish a prey base.

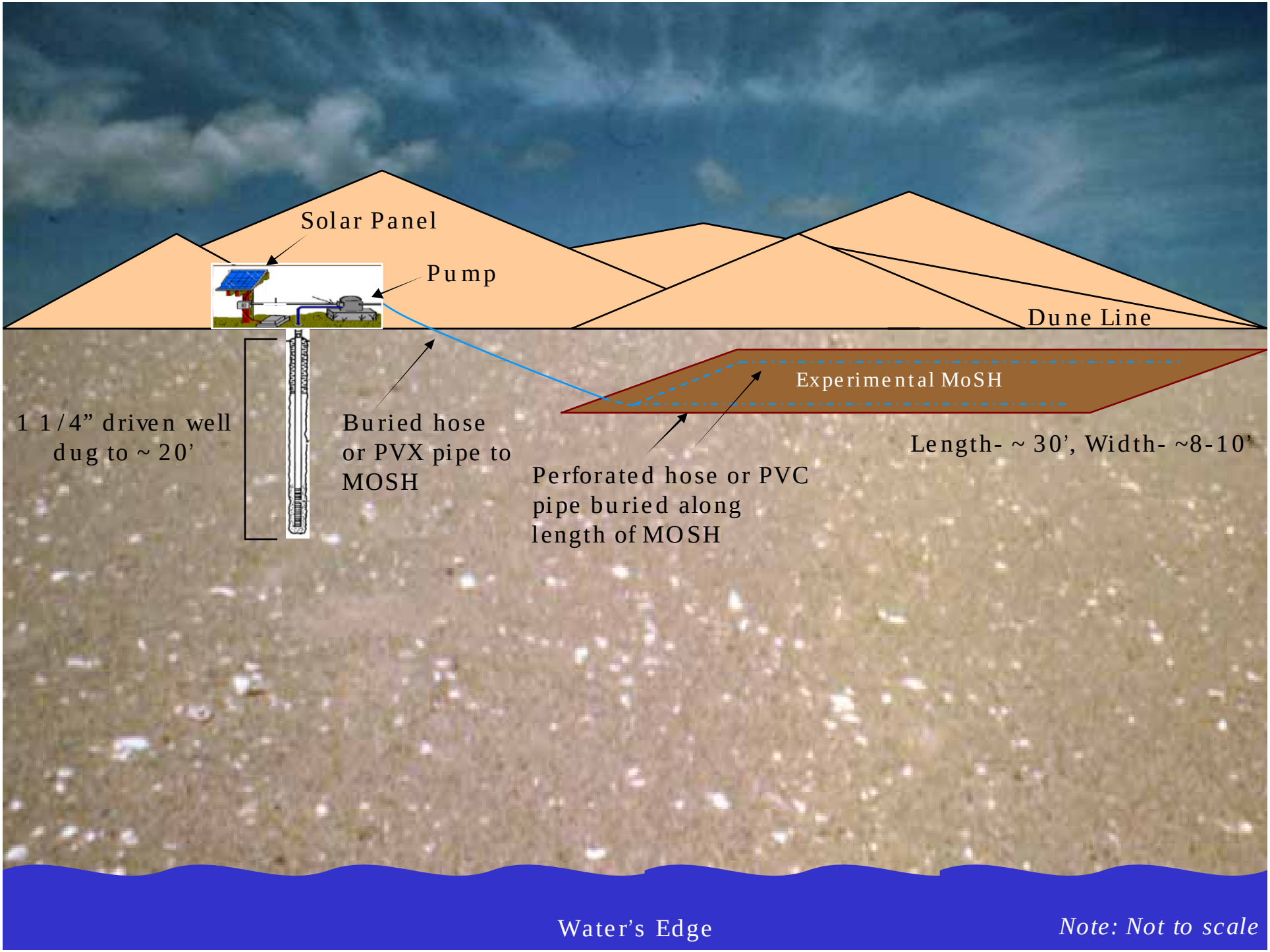
Small Scale Project

Our project will make the following adjustments:

- The use of a driven well and solar pump as a source for water, as our experimental sites do not have a counterpart to the ponds at Cape May Meadows.



- Placement of plots in existing depressions to minimize need of excavation and to facilitate the moisture retention.
- Increase the size of the plots to attract plovers to them.


Solar Panel
Pump
Dune Line
Experimental MoSH
1 1/4" driven well dug to ~ 20'
Buried hose or PVX pipe to MOSH
Perforated hose or PVC pipe buried along length of MOSH
Length- ~ 30', Width- ~8-10'
Water's Edge
Note: Not to scale

Potential Problems/ Concerns – Discussion Points

- **How large must plots be to benefit plovers? Is the proposed size too small?**
- **MOSH areas will mainly be placed on linear beach sites where territorial pairs may restrict use to one pair. Too much effort for too few birds?**
- **Will plots attract predators? Are there ways to design so to minimize attraction to avian and mammalian predators?**
- **Logistics: Digging well. Laying pipe. Will well/pump produce enough water?**
- **Mosquitoes – Consultation with Cape May Co. Mosquito Commission suggests that proposed design should not be a problem as long as there is not large amounts of standing water.**

Thanks for your input!

Special thanks to Kim Steininger for the use of the cover photo
http://www.birdsbykim.com