

HI-TECH BIRD-WATCHING

Conservationists Use NASA Radar to Follow Migrations

When NASA scientists were looking for a site for their new portable Polarimetric Radar, which measures precipitation, they contacted The Nature Conservancy's Barry Truitt about moving the radar to a Conservancy property in Oyster, Virginia. Truitt, a conserva-

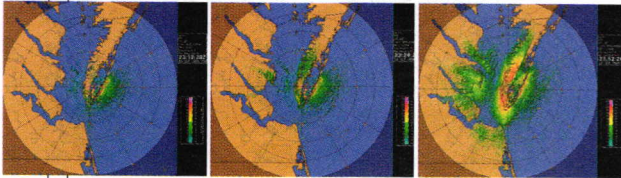
tion scientist, had his own ideas for the radar, so they struck a deal: On rainy days, NASA gathers precipitation data; on clear fall nights, the Conservancy tracks migrating birds along Virginia's Eastern Shore.

Millions of migrating songbirds stop along the shore to rest and forage before taking to the evening skies to continue their journeys. The radar picks up concentrations of migrants moving into the atmosphere, and Truitt and Sarah Mabey, a conservation scientist at North Carolina State University, use this data to identify stopover habitats. Banding studies help confirm the information. "This will open up a whole other world of habitats that these birds are using," says Truitt, "and will help us prioritize areas for conservation."

The new radar is an improve-

ment over the national network of weather radar that ornithologists have used for migration research for a decade. That radar can record the flight direction, speed and relative density of birds in the atmosphere; the newer radar can also determine the size and shape of targets. Mabey and Truitt hope to calibrate the new radar to identify the numbers and sizes of groups of birds, allowing the scientists to distinguish, for example, between songbirds and waterfowl.

"We don't really understand the big-picture dynamics of migration yet," says Mabey. "Weather-surveillance radar has great potential as a conservation tool, because it can help us see the long-term patterns and protect this phenomenon on a continental scale." —Jennifer Uscher



Radar images taken at sunset, then 12 and 45 minutes later (left to right), show a migratory bird exodus above Virginia's Eastern Shore.

WEED TRACKERS

Technology and a New Database Help Conservationists Wipe Out Weeds

As purple loosestrife, kudzu and thousands of other invasive plants blanket the landscape, creators of a computer application for mapping weeds hope its use will spread just as rapidly. Developed by The Nature Conservancy in Oregon, the Weed Information Management System was put to work in the field last year in federally funded pilot projects at six National Wildlife Refuges.

The beauty of the system, says Giselle Downard, a wildlife biologist at the San Pablo Bay National Wildlife Refuge, near San Francisco, is its ease and portability. Last summer, a handful of volunteers pulled on rubber

boots and slogged through the refuge's tidal marsh to track pepperweed (*Lepidium latifolium*, below). The weed displaces native plants that support the California clapper rail, an endangered bird that nests at the refuge. In fact, invasive species are the second-leading cause of extinctions.

Carrying hand-held computers and Global Positioning System navigation receivers, volunteers recorded instances of the weed's occurrence on 500 acres of the refuge. With a few clicks, the data feed into a refugewide computerized map. The information system "is a huge tool," says Downard. "It gives you a large-scale view of where the [weeds] are ... especially all the little isolated

patches and how they are positioned in relation to each other and to the larger patches." With the system's ability to track weed patches through time, she adds, managers can learn where control efforts are working.

Other Western wildlife refuges and the state of California have adopted the tracking system, says Mandy Tu, an ecologist with the Conservancy's Invasive Species Initiative. As more natural-area managers use the system, the information from each locale or region may be pooled to create a valuable national weed database. With so many weeds on the move, managers need all the information they can get to decide which infestations to attack. —Christine Mlot

