

OTHER TECHNIQUES FOR SURVEYING NONGAME BIRDS

Survey and Monitoring for Nongame Birds

Sierra Vista, AZ - July 2007

L:Dkrueper / Nongame Bird Course / Other Techniques for Surveying Nongame Birds.ppt

Monitoring Techniques

- GENERAL

- Point Counts
- Mist Netting
- Line Transect
- Breeding Bird Surveys
- Area Searches
- Spot Mapping
- Nest Surveys

- SPECIALIZED

- Shorebird Surveys
- Marsh Bird Surveys
- Seabird Surveys
- Raptors
- M.A.P.S.

MIST NETTING

- Monitor timing and volume of migration through an area
- Age ratios to crudely estimate productivity on distant sites (young of year : adults)
- Can provide the only measure of productivity for birds breeding north of the Breeding Bird Survey area (Canada, boreal forest and arctic habitats)

MIST NETTING - Methodology

- Net placement important
- Establish permanent net sites
- Record standard data for capture (species, age, sex, weight, fat reserves, molt, etc.)
- Band the birds, or some other marking
- Recaptures to determine length of stopover
- Always record net hours since captures are expressed as number of birds per net hour

LINE TRANSECTS

- Very similar conceptually to point counts
- Provides the same data as point counts such as species inventory, habitat use, index of abundance, density (if distance sampling is used), and population trends

LINE TRANSECTS - Description

- Involves walking a transect line at a slow rate of speed, recording all birds
- Best suited for large areas or open habitats – especially winter grasslands
- Lengths vary; widths can be fixed or unlimited, with 2 or more distance belts or exact distance measured to each bird

LINE TRANSECT – Description

- Abundance indices are totaled in number of birds per unit distance (e.g. 12 CHSP per km or 12 CHSP per 40 ha)
- Useful in all seasons
- Probably more efficient than point counts in detecting birds (detections per unit effort), but results in fewer independent data points

LINE TRANSECT - Assumptions

- Birds do not move before detection
- **All birds** within the first distance band are detected
- Distances are measured **accurately**
- Individual birds are detected independently (one bird's reaction to the observer does not influence other birds)
- Individual **birds are counted only once**
- Birds are identified **correctly**

LINE TRANSECT - Methodology

- Established in generally uniform habitat
- Transect length varies with goals or available habitat
- Permanent markers
- Frequency of counts
- What to record – species, distance interval, age and sex if possible

LINE TRANSECTS – Problems in the Field


- Difficulty due to activity or habitat conditions
- Observer variability
- Adverse weather conditions
- Violations of assumptions – especially that EVERY bird is counted in the first lateral band

SHOREBIRD SURVEYS

- Data on species inventory, habitat use, abundance (crude), and population trends
- Monitor timing and volume of migration
- In Fall, examine age ratios to crudely estimate productivity on many species



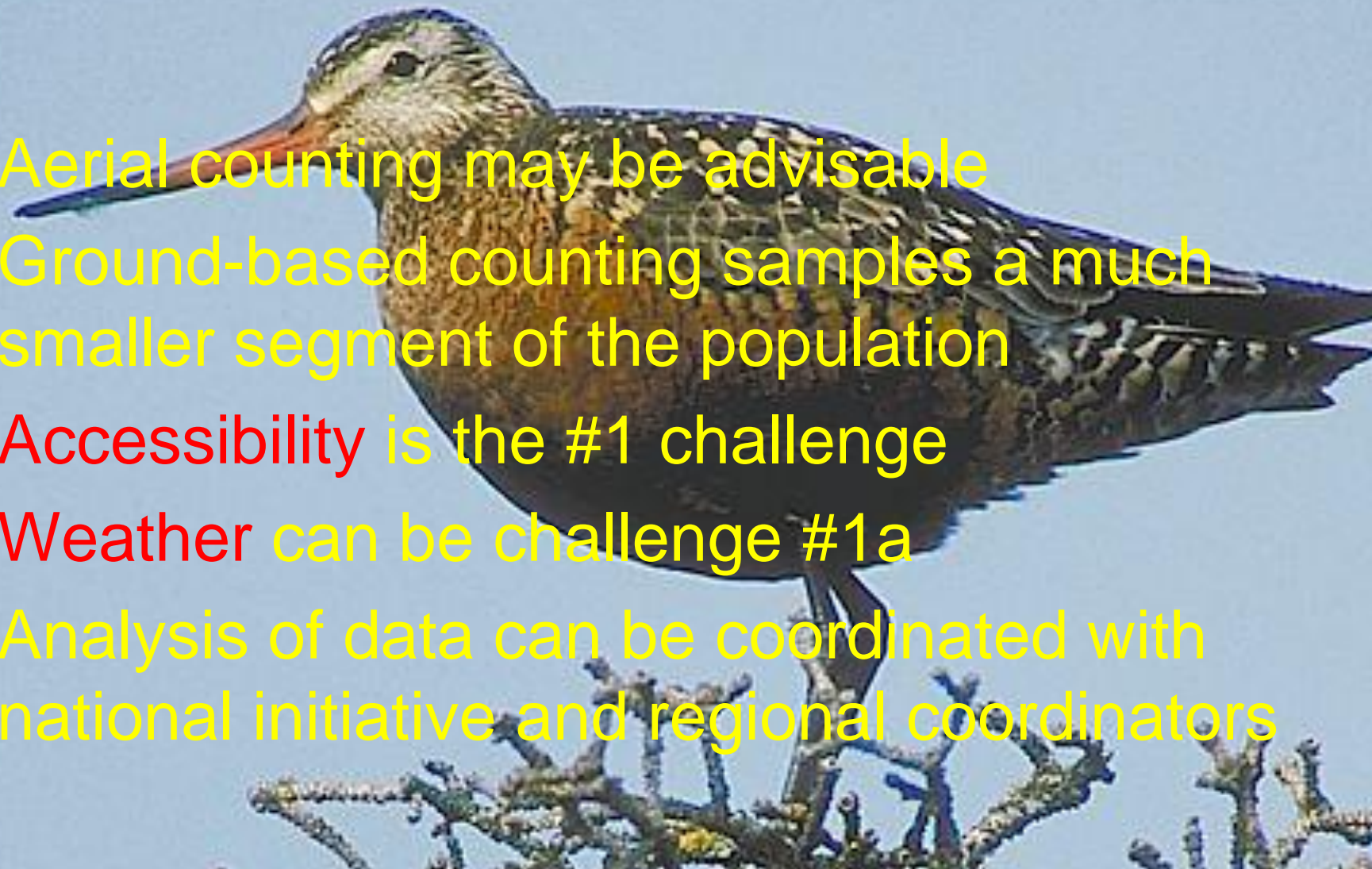
NORTH AMERICAN SHOREBIRD MONITORING PLAN

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- Presents 30+ species-specific monitoring prescriptions for individuals or small groups of similar species
 - Assumptions can and will vary by species and geographic area

United States Shorebird Conservation Plan

- Refer to each of the individual species-specific recommended monitoring protocols
- Manomet Center for Conservation Sciences
- <http://www.manomet.org/USSCP/files.htm>

SHOREBIRD SURVEYS

- Aerial counting may be advisable
 - Ground-based counting samples a much smaller segment of the population
 - **Accessibility** is the #1 challenge
 - **Weather** can be challenge #1a
 - Analysis of data can be coordinated with national initiative and regional coordinators
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MARSH BIRD SURVEYS

A close-up photograph of a brown marsh bird, possibly a species of sparrow or similar, sitting on a nest. The nest is constructed from a messy pile of dry twigs and sticks, situated in a wetland environment. The bird has brown plumage with some lighter streaking on its wings and back. The background is a soft-focus view of water and more nesting material.

- Determine the status and trends of secretive marsh bird populations
- 12 species of primary concern
- Marsh birds represent “indicator species” for assessing wetland ecosystem quality
- Abundance can be used as one measure of the success of wetland restoration efforts

MARSH BIRD SURVEYS

- Abundance and density indices only
 - Surveys rarely count all individuals due to difficulties with detection
 - Indices allow for comparisons among other areas in the region
 - Estimates of population trend are perhaps the most important element of surveys
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- A photograph of a duck swimming in blue water. The duck is dark brown with a white patch on its neck. It is facing left. The water has ripples around it.

Proceedings of the Marsh Bird Monitoring Workshop



MARSH BIRDS - continued

- Assumptions: birds will respond when solicited, and will respond in sufficient numbers to provide an index to population
- Fixed, permanent survey points in marshes >0.5 ha
- Early morning or evening surveys
- Broadcast taped calls
- Frequency of calling and pattern varies

MARSH BIRDS - continued

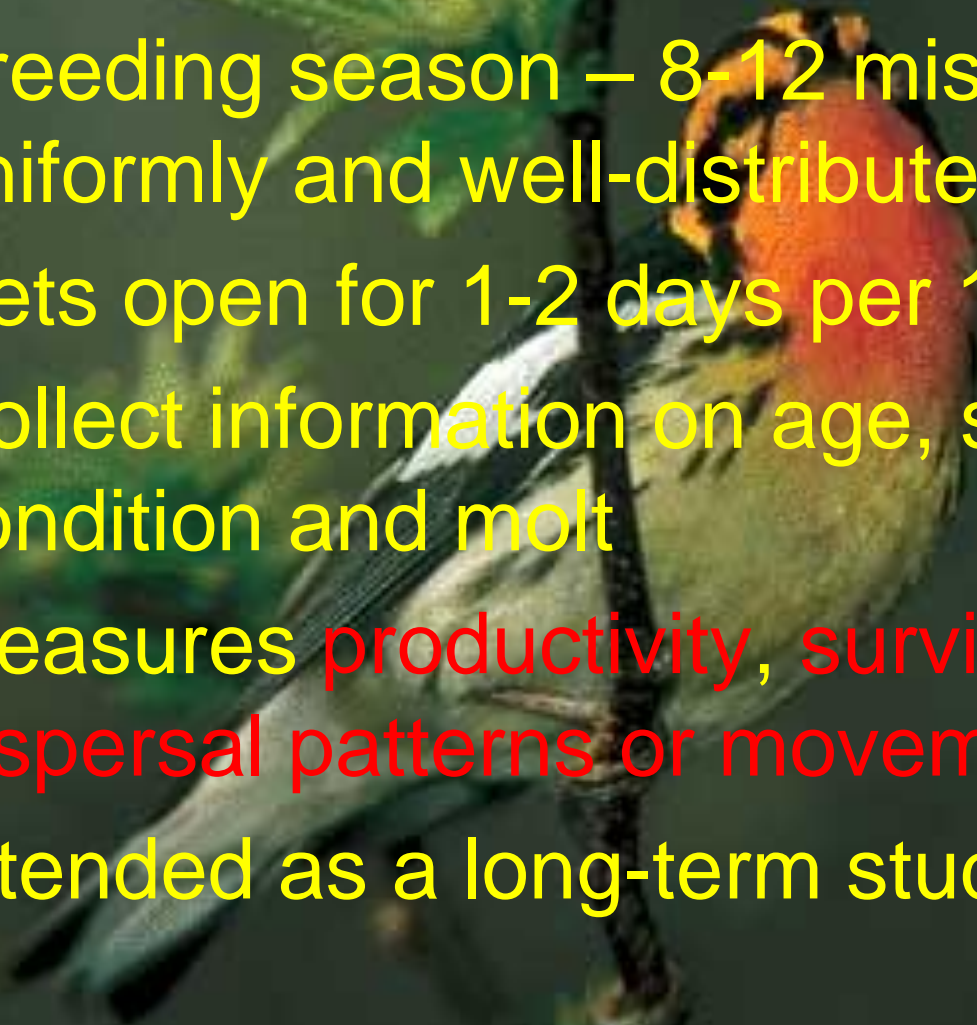
- Field data entered onto field form, and then transferred to spreadsheet program
- Data then sent to regional coordinator – Courtney Conway in the Southwest
- cconway@ag.arizona.edu
- *STANDARDIZED NORTH AMERICAN MARSH BIRD MONITORING PROTOCOLS – C. Conway*

MONITORING AVIAN PRODUCTIVITY AND SURVIVORSHIP – M.A.P.S.

- Sample the breeding bird population
- Provide an index of post-fledgling productivity
- Provide a measure of adult survival and recruitment
- Lend insights into possible causes of population changes

M.A.P.S. - Methodology

- Breeding season – 8-12 mist nets spaced uniformly and well-distributed
- Nets open for 1-2 days per 10-day interval
- Collect information on age, sex, body condition and molt
- Measures productivity, survivorship and dispersal patterns or movement
- Intended as a long-term study (10+ years)



M.A.P.S. - Methodology

- Institute for Bird Populations
- 75-100m between nets, over 5-10 ha
- Visit the net array every 10-15 minutes
- Place nets in areas which birds will most likely frequent (habitat edge, near water)
- Same net type and location throughout
- Open nets at sunrise in same order



M.A.P.S. - Methodology

- Record opening and CLOSING of nets
- Nets operated 4-6 hours each day
- **WELFARE OF THE BIRDS IS THE FIRST CONCERN**
- Females and fledglings should be processed first and released immediately
- Record all recaptures (critical)
- Data sent to IBP at end of season for regional analysis



