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OVERHEAD GRID LINE SYSTEMS TO EXCLUDE WATERFOWL FROM LARGE BODIES OF WATER

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The presence of birds at retention/detention basins on or adjacent to an airport increases the probability of experiencing a wildlife strike. Overhead gridline systems have proven effective for reducing the presence of birds on small water bodies. While there are several grid materials available to address bird hazards associated with small basins, the list of options decreases quickly as the distance to be spanned increases. The Michigan Wildlife Services program (WS) tested five types of grid material on three large detention basins to determine which materials could span up to 675 meters (2214.5 feet) without center supports. Additionally, the line material could not sag substantially, because of water fluctuations of up to 1.5 meters (5 feet) depending on the frequency and duration of rain events. If a line would touch the surface of the water, the surface tension would hold it in place until freeze-up. The material found to be superior in our tests, was a braided fishing line made of Spectra® called PowerPro. Grid lines were suspended in two directions on 30-meter (100 foot) spacing. Preliminary results show a notable reduction in bird usage by waterfowl and gulls.

Overhead Gridline Systems To Exclude Waterfowl From Large Bodies Of Water

Tony Duffiney
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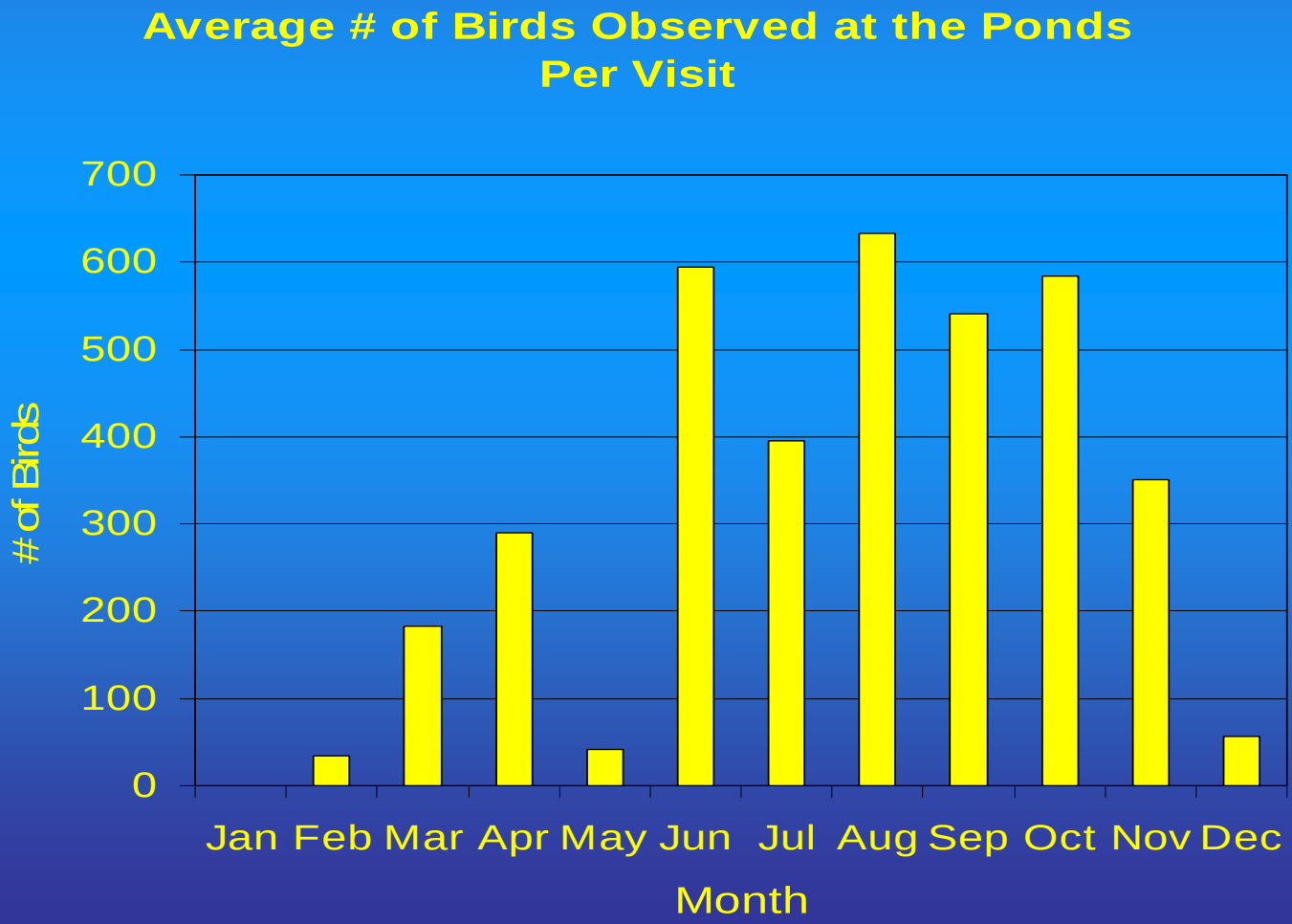
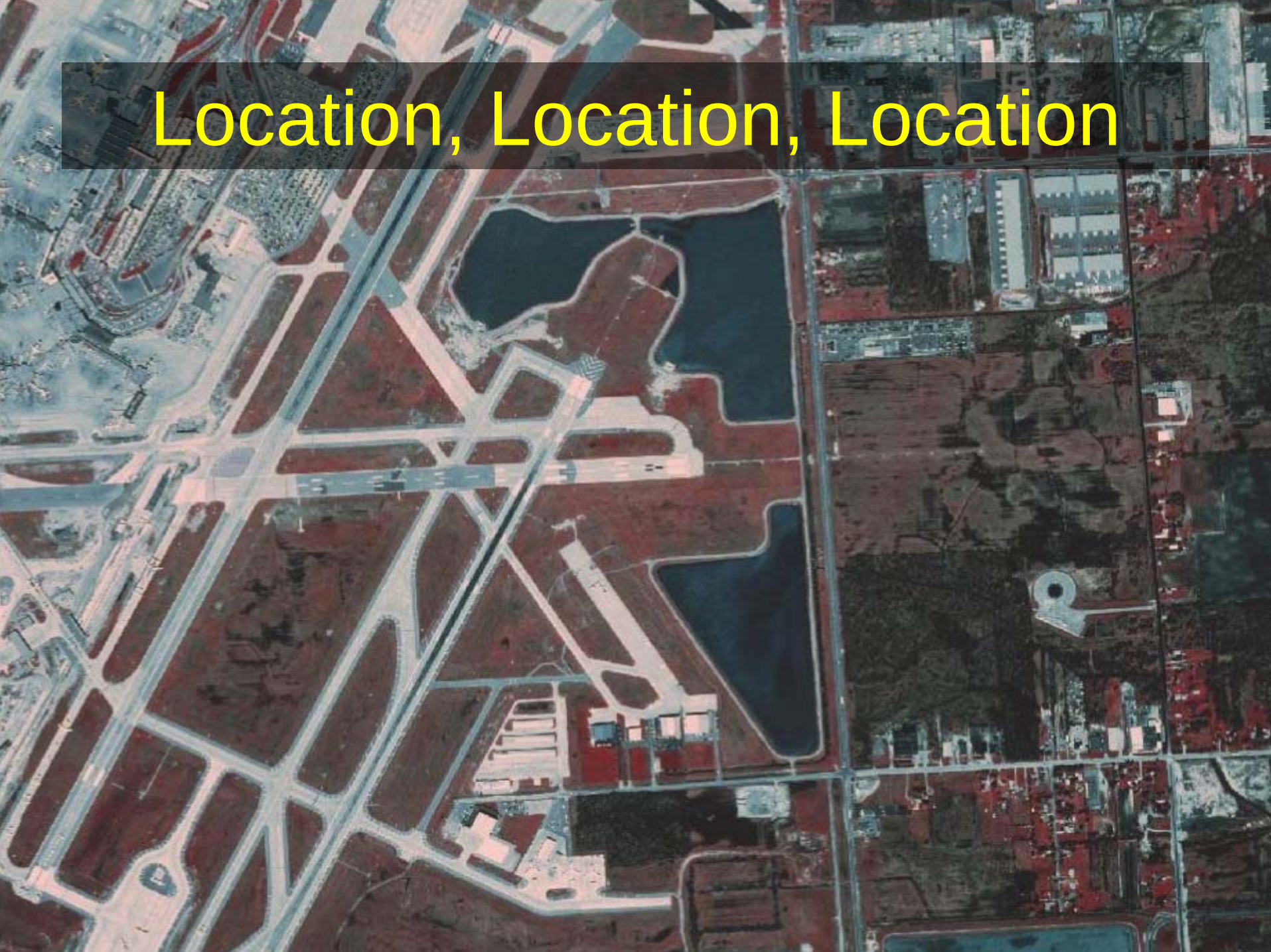
DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

Background

- Wildlife Hazard Assessment 2000-2001
  - Identified ponds as significant wildlife attractants




Location, Location, Location

- 2002, WS proposed testing an overhead grid line system
  - Largest pond
  - Keep costs minimal

Problems

- Pond size
- Supports
- Fluctuating water levels
- Attaching line material to supports
- Line material
- Line spacing


Pond Size = 16 ha (38 Acres)
377 Meters
675 Meters

Supports

- T-posts
  - Not above pond berm
  - Not in pond

Fluctuations in Water Level

- Seasonal pond levels: few inches - 4 ft

Complicating Factors

- Weather
  - Snow, ice, wind, & rain
- Temperature
  - Warm = line materials stretch
  - Cold = line materials contract
- Pond Surface Tension

Attaching the Line

- High-Tensile Fence Strainer
  - Line tension could be adjusted as necessary
  - Strainer capacity
    - good for smaller diameter line
    - poor for larger diameter materials.

Materials

Polypropylene line | High-tensile fence wire | Monofilament line | PowerPro®

Materials

- Polypropylene Line
  - 12 gauge & 15 gauge
  - Pros
    - Moderately light weight
    - Inexpensive
  - Cons
    - Constantly re-tensioning due to stretch from sun
    - Large diameter quickly filled spool on strainer

Materials

- Galvanized High Tensile Wire
  - 2 diameters, 12.5 gauge & 15 gauge
- Pros
  - Readily available
  - Easy to work with
- Cons
  - Heavy - special posts installed for test
  - Could not span long distances unsupported,
  - manufacturer recommends supports every 100 feet

Materials

- Fishing line
  - Tried various lb. tests & diameters of monofilament
    - Pros
      - Readily available in several lb. tests & diameters
      - Easy to work with
    - Cons
      - Too much stretch
      - Degrades quickly in sunlight
      - Easily abraded

SUCCESS!!!!!

- PowerPro® Fishing Line
  - Super-braided line
  - Pros
    - Very low stretch
    - Does not absorb water
    - Very abrasion resistant
    - High strength:diameter
  - Cons
    - Low Visibility-
      - add mylar/surveyors tape to increase grid visibility
    - Not easily cut

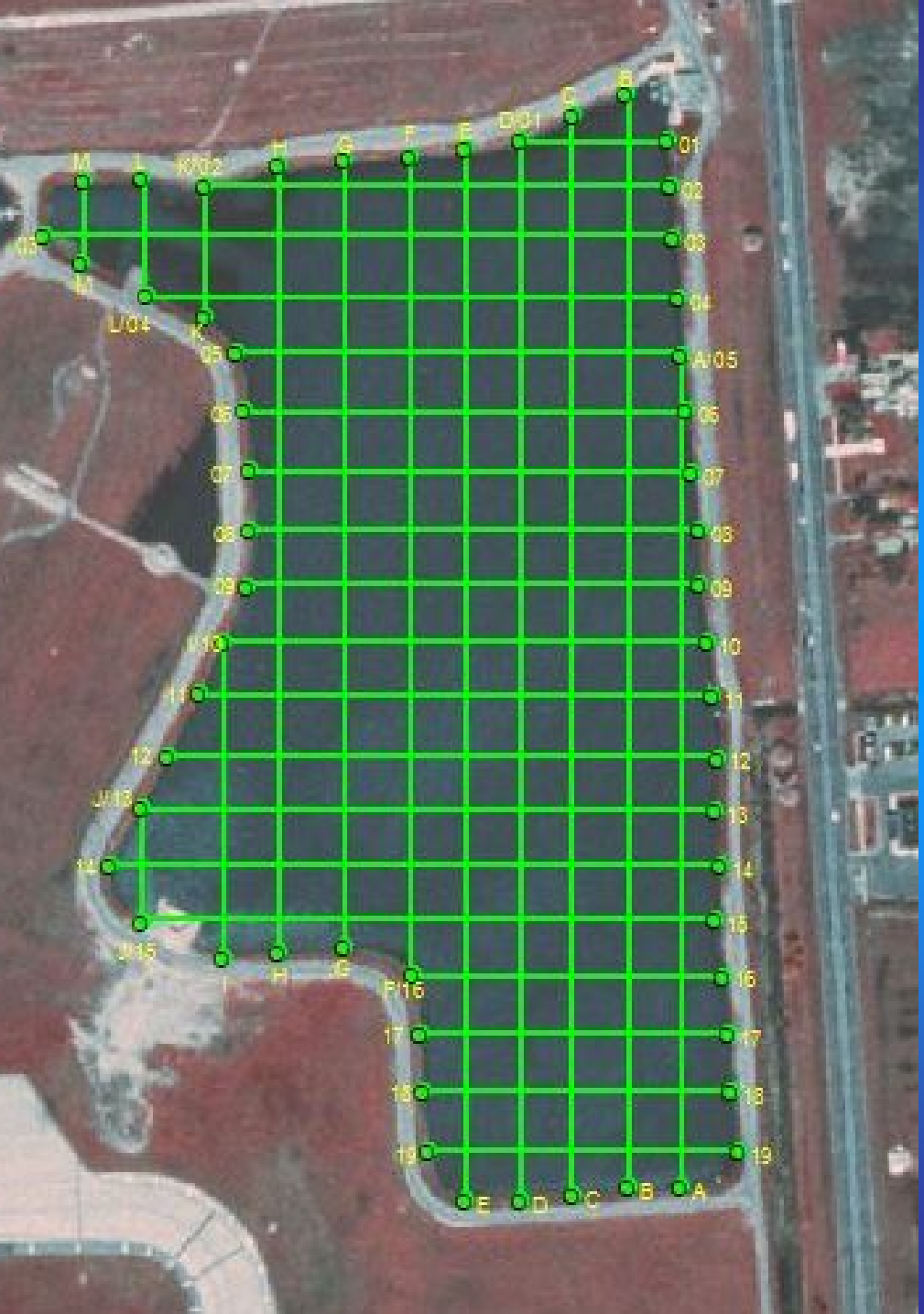
Line Spacing

- Lines on 100’ centers (Approx.)
  - Pond shape, electric fixtures, etc. determined actual location of support posts.
  - Adjustments for bird species

Materials Cost
Pond 004

Grid Line	$ 3741
Posts	$ 222
Strainers	$ 141
Brace wire	$ 9
Auger Rental	$ 65

$4178.00



Materials Cost
Pond 003E

Grid Line	$ 3077
Posts	$ 218
Strainers	$ 127
Brace wire	$ 9
Auger Rental	$ 65

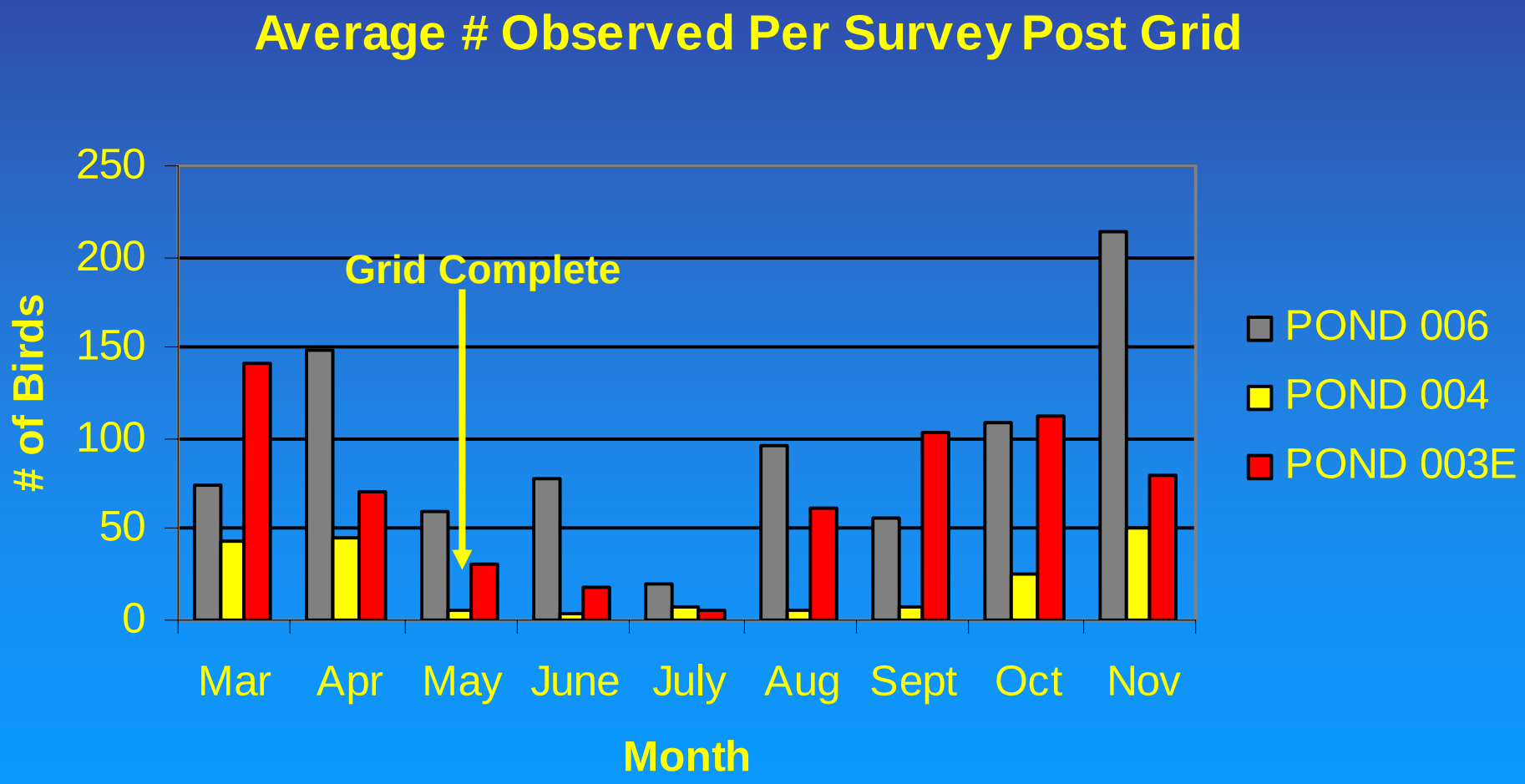
$3496.00

Materials Cost
Pond 003W

Grid Line	$ 1745
Posts	$ 138
Strainers	$ 90
Brace wire	$ 9
Auger Rental	$ 65

$2047.00

Results


Average # Observed Per Survey Post Grid
250
200
150
100
50
0
# of Birds
Grid Complete
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Month
POND 006
POND 004
POND 003E

Results

- Bird species excluded
  - Swans
  - Geese
  - Gulls
  - Cormorants
  - Most duck species
- Bird species not excluded
  - Herons
  - Egrets
  - Kingfishers
  - Smaller duck species i.e., grebes, teal

Conclusion

- Can an overhead line system be effective in excluding waterfowl on large water basins……**YES!!!**

- Questions?????