

2012 MOPL Nest Searching/Marking/Visit Protocol

The goal of marking MOPL nests is to make them visible so that landowners can avoid them during tillage operations, as well as to find a sample of nests for research projects. The goal of repeat visits to nests is to document their success or failure.

Nest Searching and Marking

We generally survey entire quarter-sections (QS). Our protocol is a compromise between research, conservation, and landowner priorities. RMBO's spatial researcher (currently, Rob Sparks) uses the GRTS algorithm to select a randomized spatially-balanced sample of available QSs (currently, crop fields where we have landowner permission). Lower QS rank means higher priority for the research project. During the chick survival study, QS are freshly selected each year, with no regard for previous years' sampling. In future, a different focus (such as longer term fidelity or adult survival) might call for resampling in certain areas year after year. Landowners sometimes request that we survey for MOPL on their fields, and we do our best to survey those QSs as well, particularly if their fields have been known to be good MOPL habitat in the past. The NPP Project Assistant (currently, Larry Snyder) schedules our QS surveys and takes care of most of the landowner communications.

Ideal weather conditions for land/nest searching include sun and warm temperatures (soil surface warm to touch), winds ≤ 20 mph (32.2 kph), and no rain. Attempts can be made in less than ideal conditions if necessary, but adults may not return quickly to their nests (may forage). Nests can be revisited during cooler or windy weather.

Take with you into the field:

- Blank land search datasheets and nest visit datasheets (in case nests are found)
- Past land search datasheets, if this is a return visit to check on MOPL previously seen with no nests found
- ATVs, extra gas, rope with bungie at ends and tied shopping bags
- GPS units, compass, radio, cell phone, extra batteries, anemometer, binoculars, ruler
- Kimball Co. maps
- Active iButtons: should be pre-programmed to "start mission" and record temperatures at 60-min intervals. Assemble iButton with nail, double layer of pantyhose, and rubber band (see photo in Dreitz iButton Protocol).
- Long and short stakes, large marker for printing nest #, mallet

Land Search Protocol:

1. Record location, start time, and weather on land search datasheet.
2. Stretch rope between two ATVs and drive the entire field, if possible. Only non-planted fields can be driven this way (fallow bare, stubble with no planting). Inside ATV forms pivot point for a turn and drives back in the opposite direction in previously made ATV tracks. Outside ATV keeps rope taut. Both people focus ahead of area under rope, watching for MOPL. Also watch to your other side (beyond rope).
3. In planted fields, you can only drive the perimeter and do walk outs. Walk in a zig-zag and watch for MOPL in likely spots (like high, rocky parts of wheat fields with lower, sparser wheat growth).

4. Fill out QS map as you go (print from Google maps ahead of time, for difficult QSs) and label average vegetation height (cm) and % bare ground for each strip (see Veg Protocol). You may need to mark corners by GPSing one corner and driving 805 m to another corner.
5. When MOPL is sighted, stop and place stakes upside down next to ATV. Reverse to 100 m + and drop rope. Drive back to good viewing point. Watch for adult's return. If it sits, this may be the nest. Generally do not spend more than 30 min – 1 hr searching for a nest. Instead GPS adult's original location, record sighting on datasheet, leave a stake, and return another day for a spot check.
6. Once the nest is found, GPS it, place labeled short stakes ~ 1m on either side of nest, and place long stakes ~ 10 m in all four directions. Thin side of stake should face nest. Nest # is five digits, YY####; for example, the first nest found in 2012 was numbered 12001. Fill out all information on the nest visit datasheet, including the nest information at the top of the form. This information on nest location must only be filled out once, while remaining data must be recorded at each visit.
7. Eggs should generally be floated when nest is found. Exceptions include any eggs with cracks or chips (do not float).
8. Install iButton while eggs have been moved from nest for floating. Push into bottom of nest, and partially disguise by replacing nest materials (see Dreitz iButton protocol).
9. Also note any recent farm activity or weather event. Ask NPP Project Assistant for help with dating these events.
10. When QS survey is finished, fill out end information (date, time, weather).

Nest Visit Protocol

1. Completely fill out datasheet, including date, time, weather, and nest status information.
2. Eggs should generally be floated once per week during nest visits. Exceptions include any eggs with cracks or chips (do not float), or return visits to nests with eggs that should be ~ 10 days or more from hatch, with adults clearly visible on the nest (do not disturb needlessly).
3. If you walk out to nest, record all veg info on datasheet (see Veg Protocol). Do NOT turn around and return in your tracks (may attract predators). Instead, circle around nest and continue in the same direction you were traveling until you are > 10 m from nest. Then you can circle around and return to ATV.
4. For landowner found nests, visit them as soon as possible after notified by landowner. Put info from landowner on the datasheet (who found it, when, and any other observations (# eggs or chicks)). For RMBO found nests, fill out map for landowner, call them, and put map in their mailbox or deliver it in person.
5. Nests are considered successful as soon as one egg has hatched and failed whenever no viable eggs remain. Continue to visit successful or suspected failed nests until fate of all eggs is known, if possible. When nests are complete, pull iButton (label nest # and date) and stakes.

Entering Data

1. Enter essential information (such as nest status and expected hatch date) EVERY DAY into Google Docs. Sort datasheets so they can be quickly relocated.
2. Enter data as often as possible into Access database. Main navigation form has tabs for land search, nest info, and nest visits. Data must be entered in this order: land search, nest info, nest visit. Nest

visits cannot be entered until land search has been entered with that nest recorded on it, followed by entry of nest location info.

3. Be sure to enter data in a NEW record. Do not overwrite existing records. Access saves as you go. Hit escape multiple times if you make a mistake or get stuck, until you get out of the problematic record. If errors come up, you may have made an entry error (for example, rank = 001, not 1).
4. Enter into forms. Look at and export data later using tables or queries.
5. Scan land search maps, put into "Maps" folder, and record file name on datasheet and in database (T_R_S_QS_Mo_Day_Year.jpg).
6. Before end of year (or if iButton is needed at a new nest), save data from iButton by plugging into computer, selecting "Thermochron" temp data, and right-click to save as .csv file labeled with nest # and date (e.g., 12016_6_20_2012.csv). Verify the data in the csv files before "stopping" and "restarting mission" for new nest.