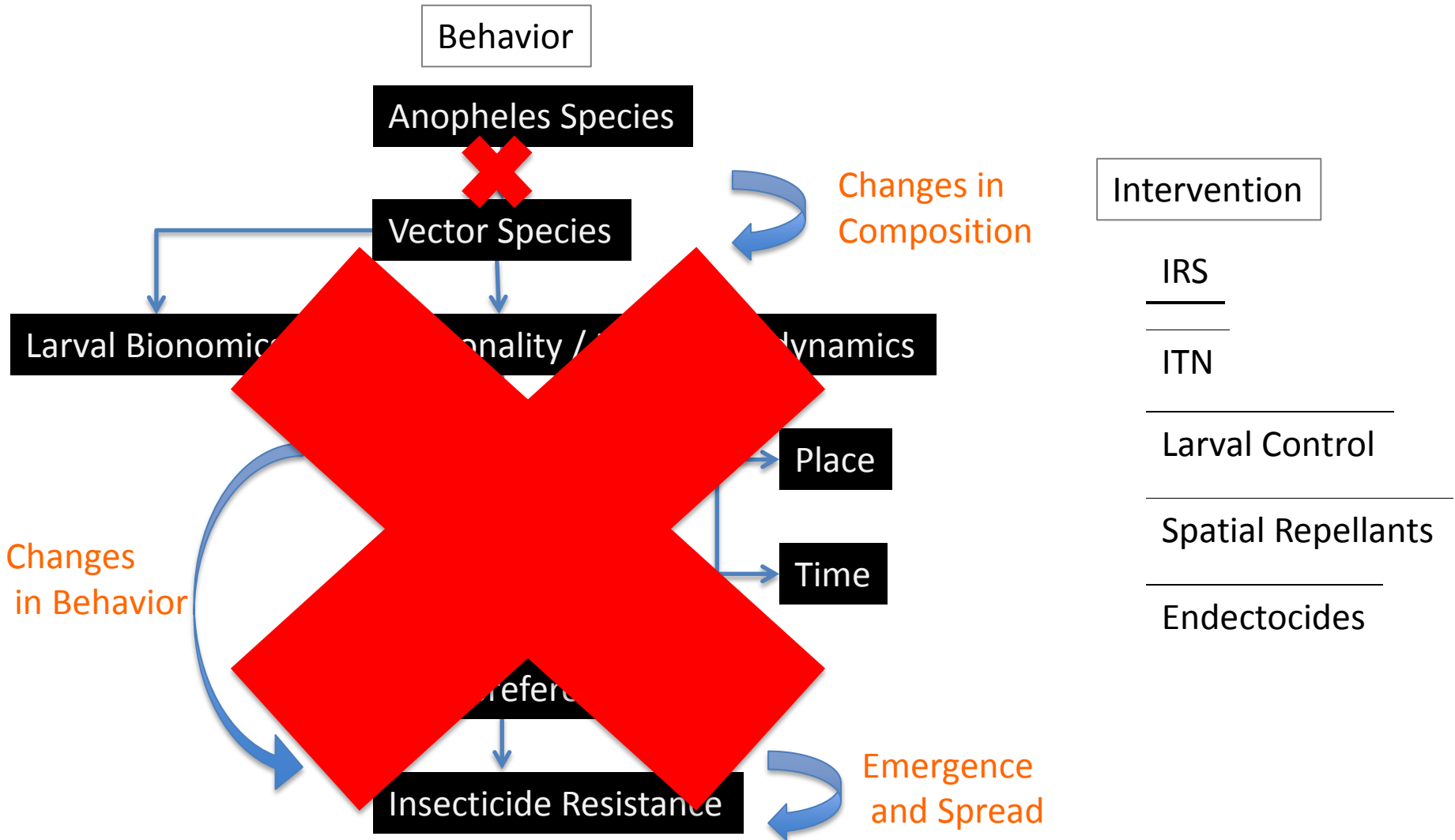


Towards better morphological
and molecular
identification of malaria vectors

Neil Lobo and Seth Irish

Why is Species ID important



The problem

- Mosquitoes are difficult to identify
 - Key characteristics can be altered (scales rubbed off) or removed (legs falling off)
 - Morphological identification keys are out of date
 - Cryptic species – molecular identification required
 - Variation seen in the field
 - Novel species
 - Work conditions



Morphological identification challenges

- Updated keys for African *Anopheles*
 - Gillies & Coetzee (1987), supplement to Gillies & DeMeillon (1968)
 - CD-ROM by Hervy et al. (1998)
 - Lucid key, Rueda (www.wrbu.org)
- Training (and retraining) of taxonomists/entomologists
- Morphological identification is needed for some molecular assays and vice versa

Molecular identification aspects/challenges

- PCR – identification of species complex members
 - *An. gambiae*, *An. funestus*
- Sequencing (CO1 / ITS2)
 - Identification from GenBank, BOLD
 - Relies on identifications provided by users
 - Specific, taxonomy
 - Cost / capacity
 - Ideal to link morphology with molecular data
- Ideally link morphology to molecular data

Present status

- No funding

At present nothing can be done about recommendations from last year

- Training
- Development of Collection and deposition of mosquito specimens in museums
- Development of “good” datasets with association of species with sequence data (and specimen in museum)

Way forward

- Guide for collection, processing, and preservation of mosquitoes to determine species through morphological and molecular methods

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- SECTION 2 Collection of mosquitoes (Mosquito sampling)
 - Egg collections
 - Larval and pupal collections
 - Adult collections
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 - Killing mosquitoes
 - Preparation of larval slides
 - Pinning of adult mosquitoes
 - Morphological identification of mosquitoes
 - Long term preservation of mosquito specimens
- SECTION 4 Molecular work to identify mosquito species
 - Extraction of DNA
 - PCR identification
 - Sequencing of ITS2 and CO1
 - Other identification methods (like??)
- SECTION 5 Sharing results
 - Genbank
 - Barcode of Life
- SECTION 6 Recommendations
- ANNEX 1 Morphological identification resources
- ANNEX 2 Molecular protocols

Please contact
Seth Irish: xjs7@cdc.gov
Neil Lobo: nlobo@nd.edu

So that you can
contribute and/or help
with edits

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