Climatic Modeling of *Cactoblastis cactorum* Occurrence in North America

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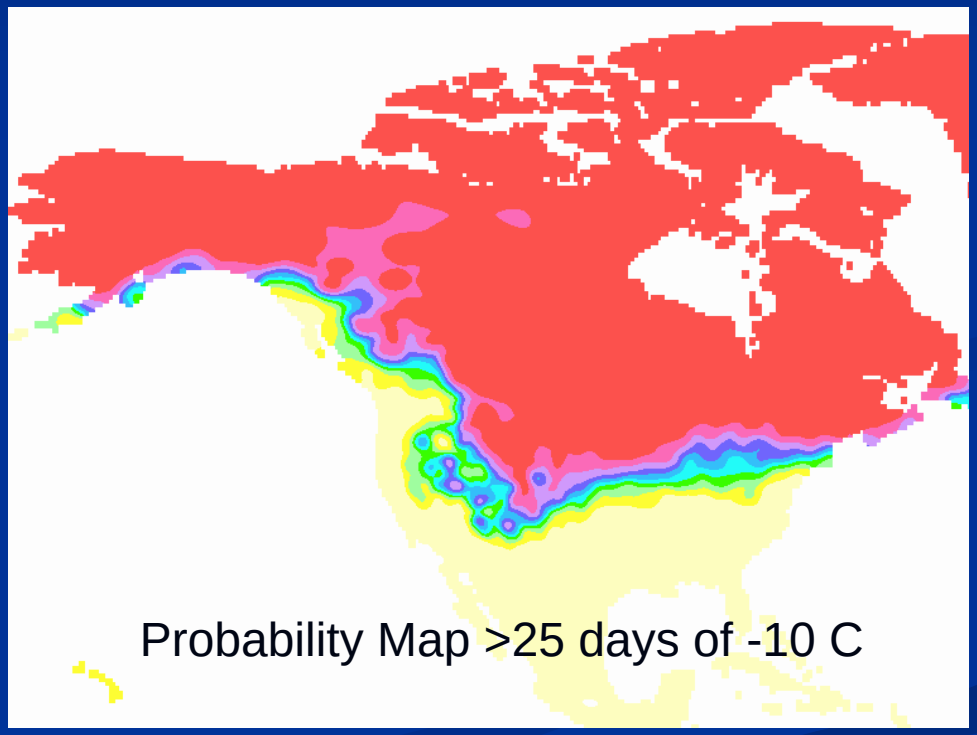
NAPPFAST

NCSU APHIS Plant Pest Forecasting System

- Internet based modeling system
  - **http://www.nappfast.org**
- Integrates:
  - Simple models (Infection, Degree Day, Multifunction)
  - Weather data (30 yr daily North America) (30+ year monthly summary World)
- Produces geo-referenced output maps



Cactoblastis cactorum

- *Cactoblastis cactorum*- specifics of DD requirements unknown
- Data received from K. Bloem, derived estimate of generation DD requirements (1250) and base temp. 8.75ºC

Egg:
415 DD

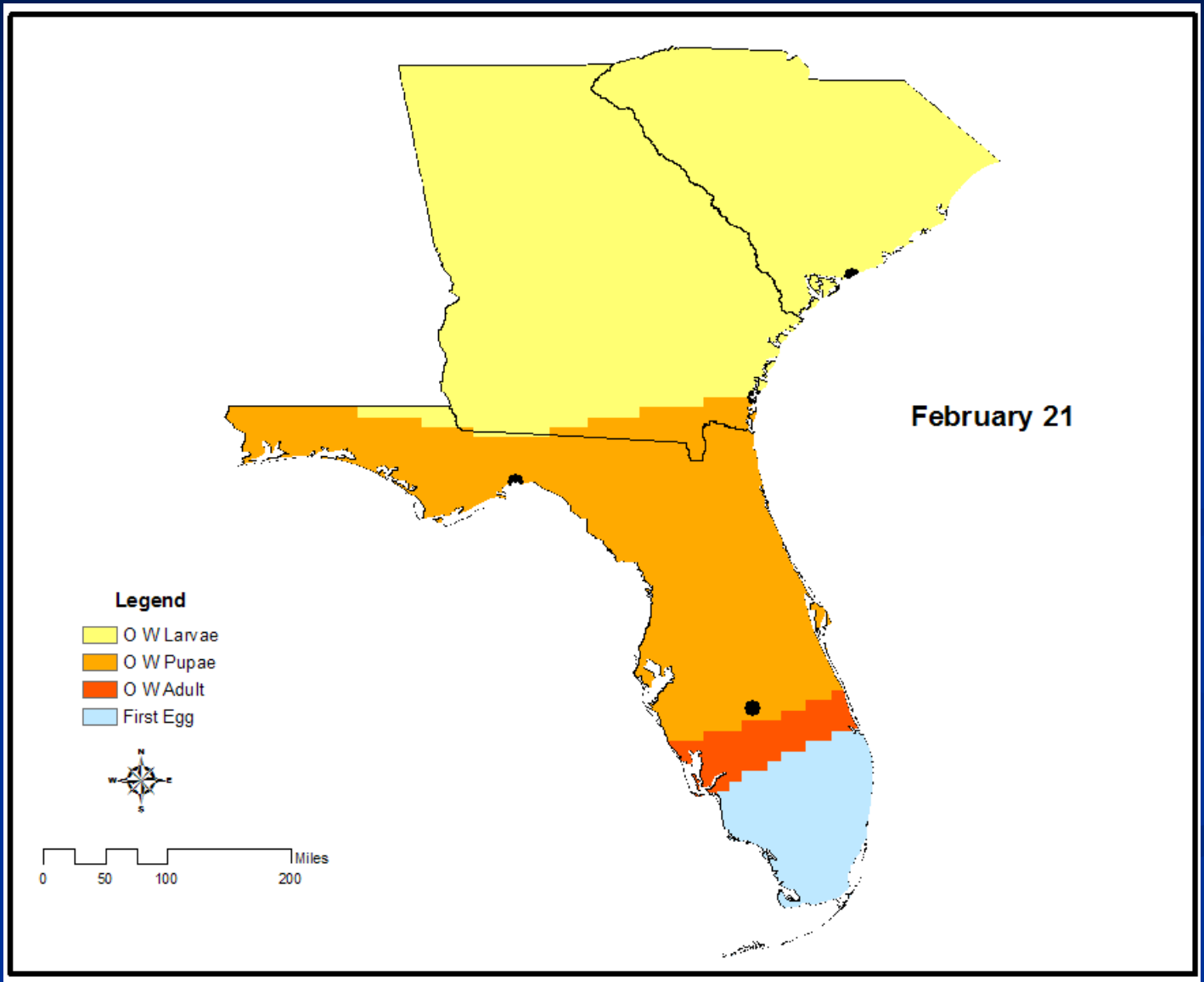
Larval stages:
600 DD

Pupae:
200 DD

Adult Preovip.:
35 DD

Photographs by: D. Habeck and F. Bennett, University of Florida

Cactoblastis Phenology: 2005



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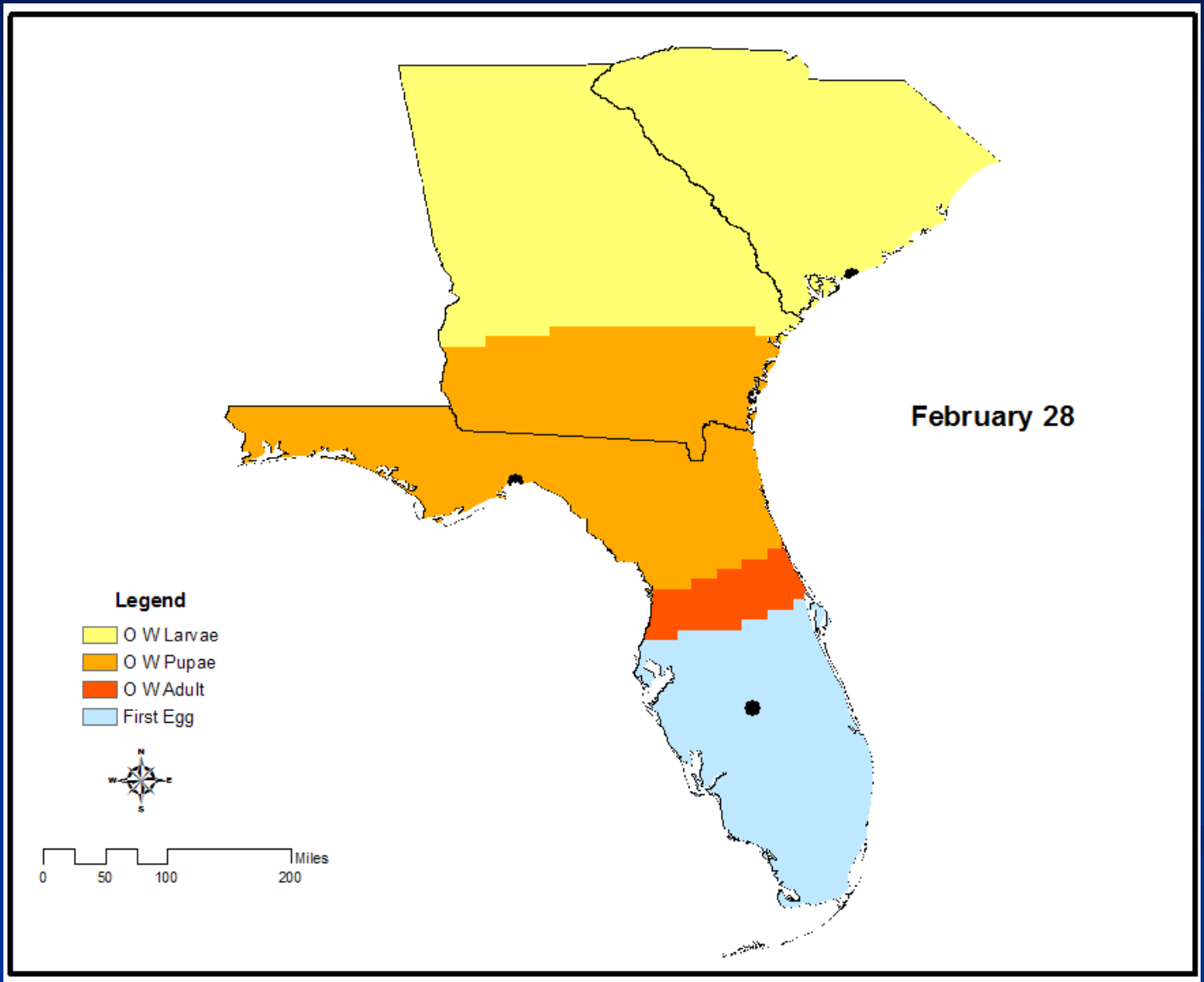
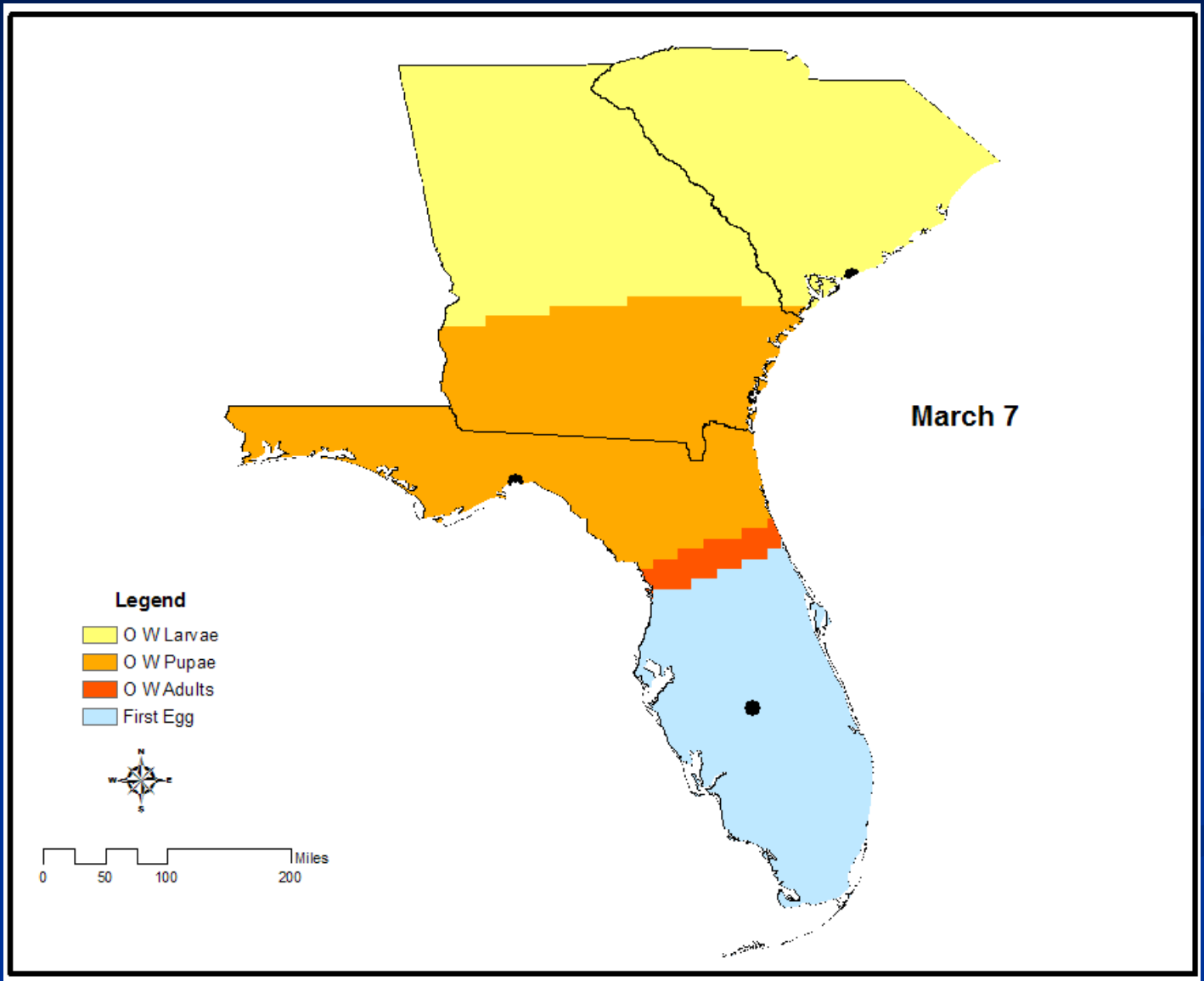
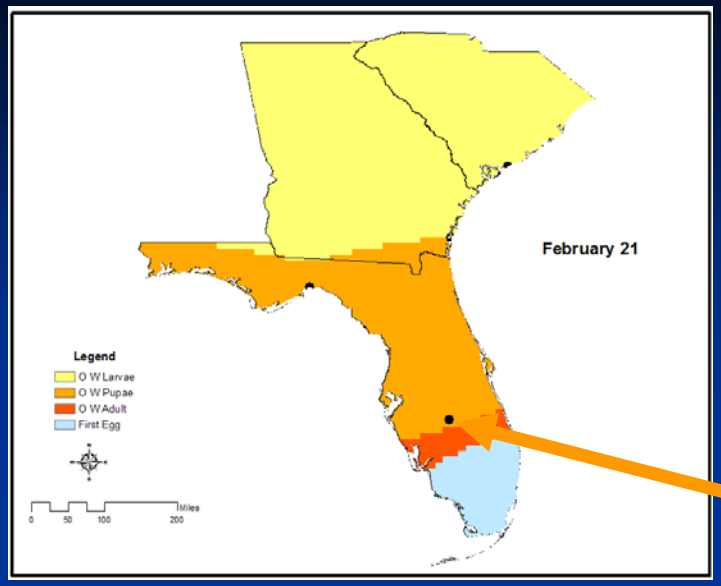


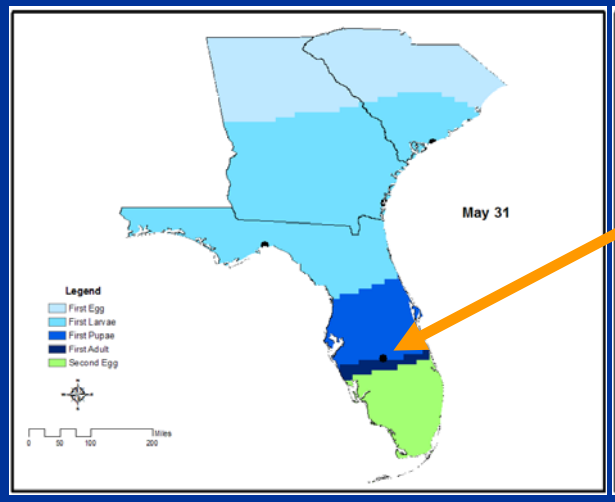
Cactoblastis Phenology: 2005



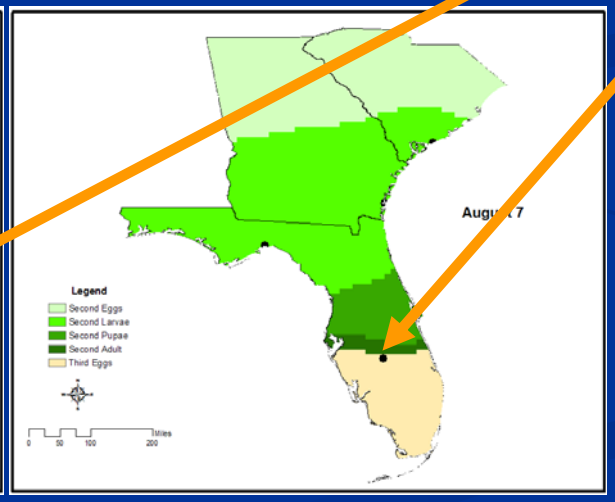
Sebring, Florida



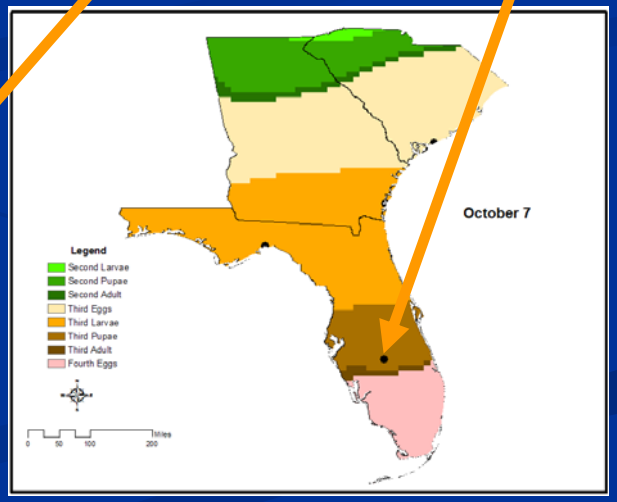
First Flight



Second Flight

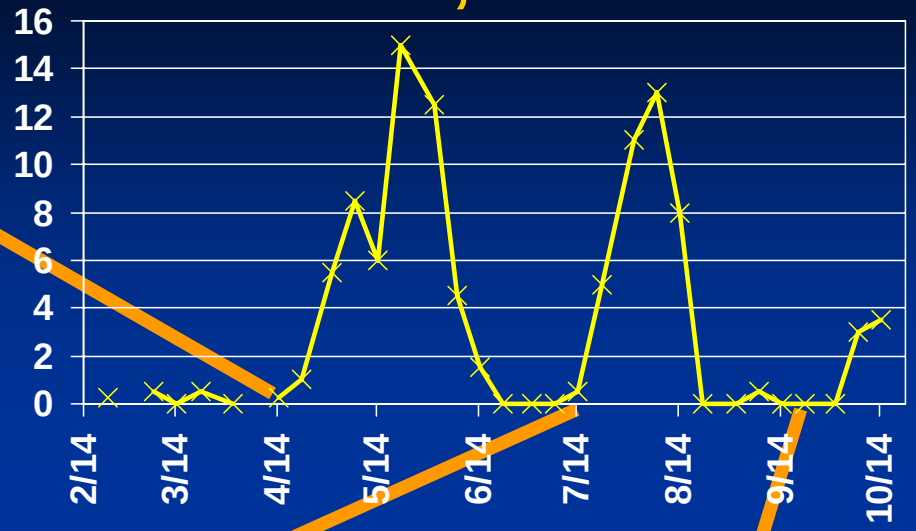


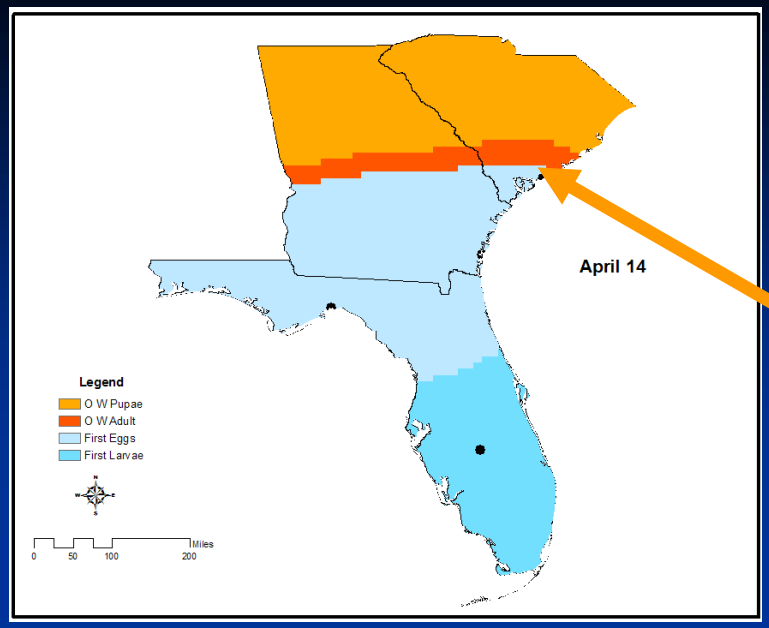
Third Flight



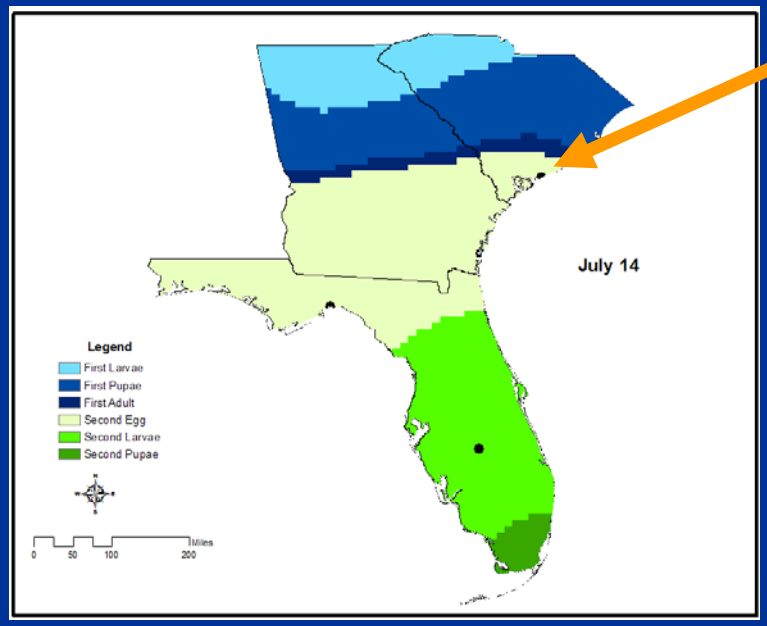
Fourth Flight ?

Edisto Island, South Carolina

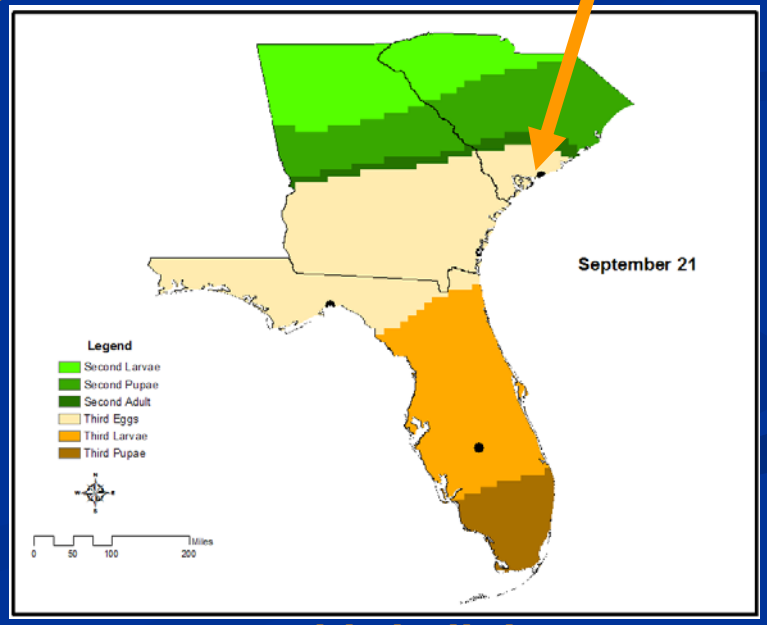




First Flight

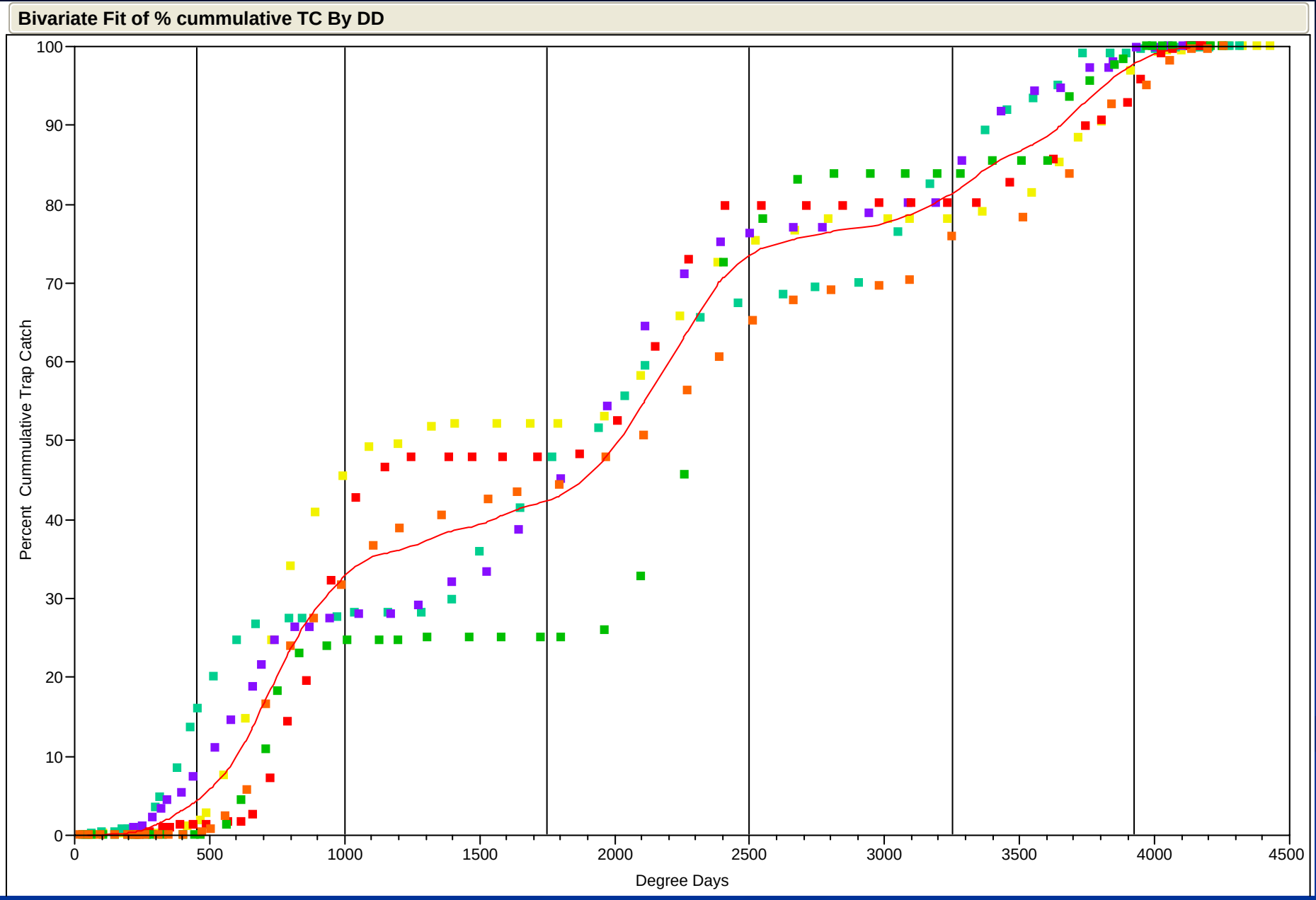


Second Flight

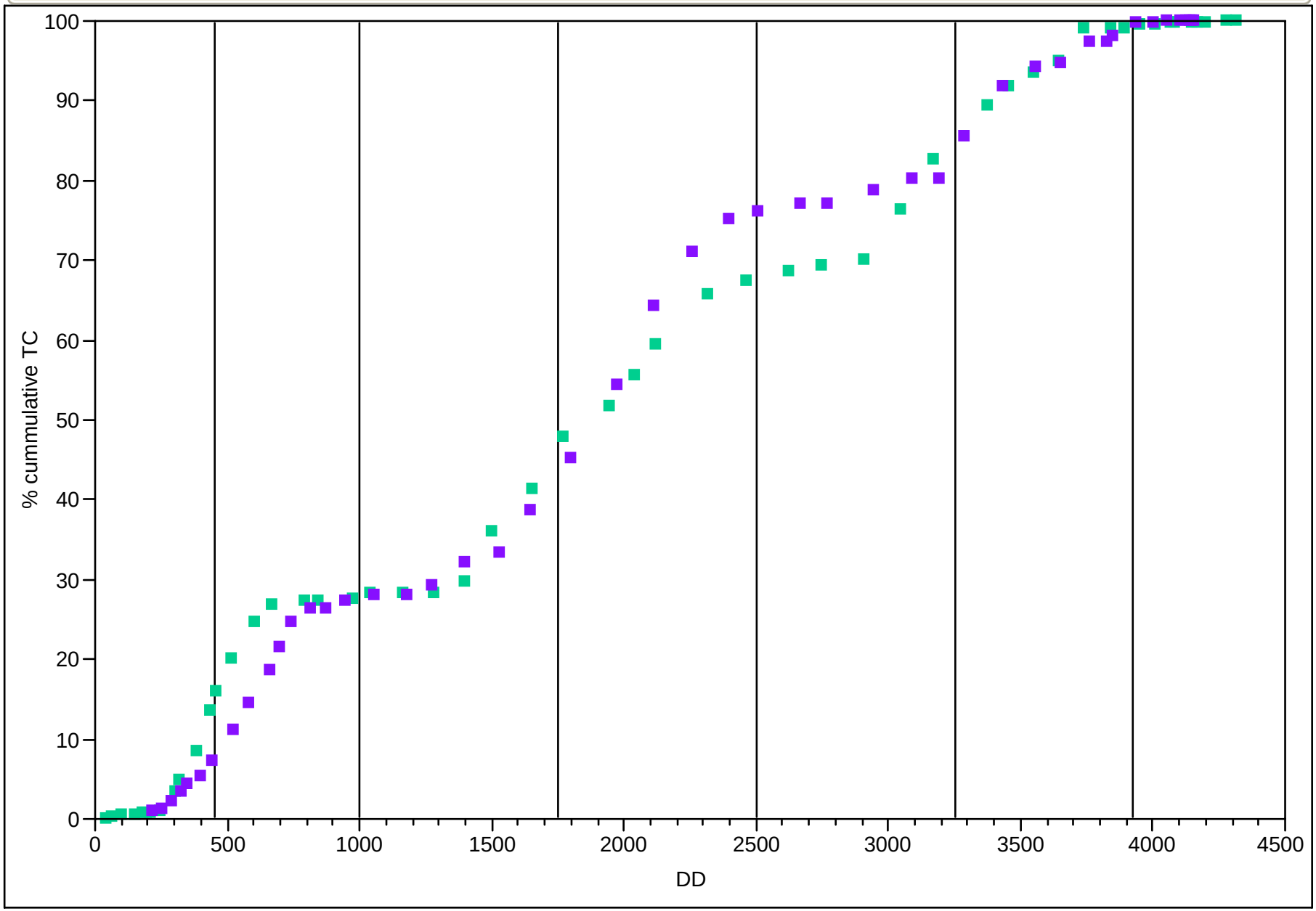


Third Flight

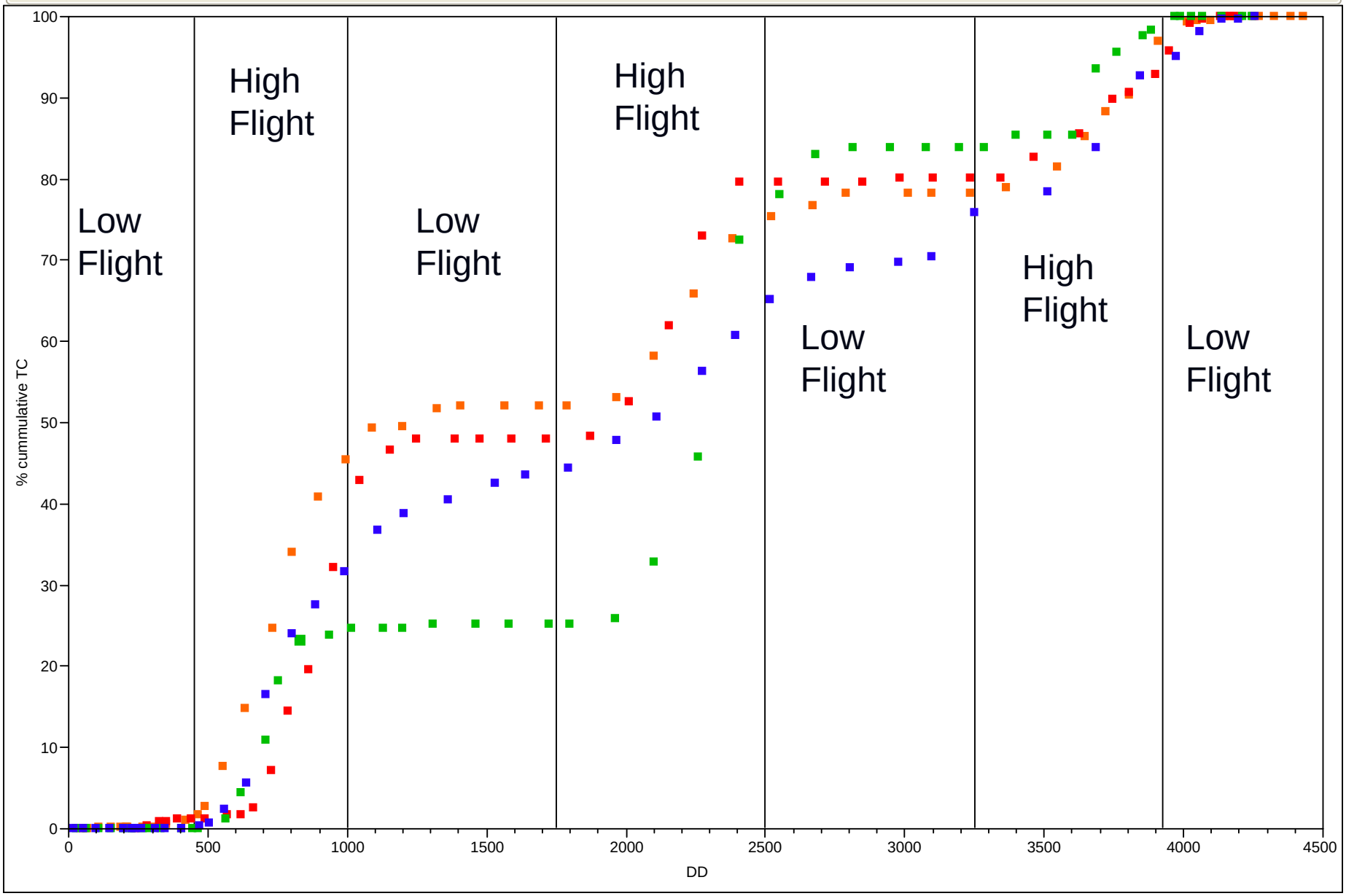
Cumulative Percent Trap Catch vs. Degree Days



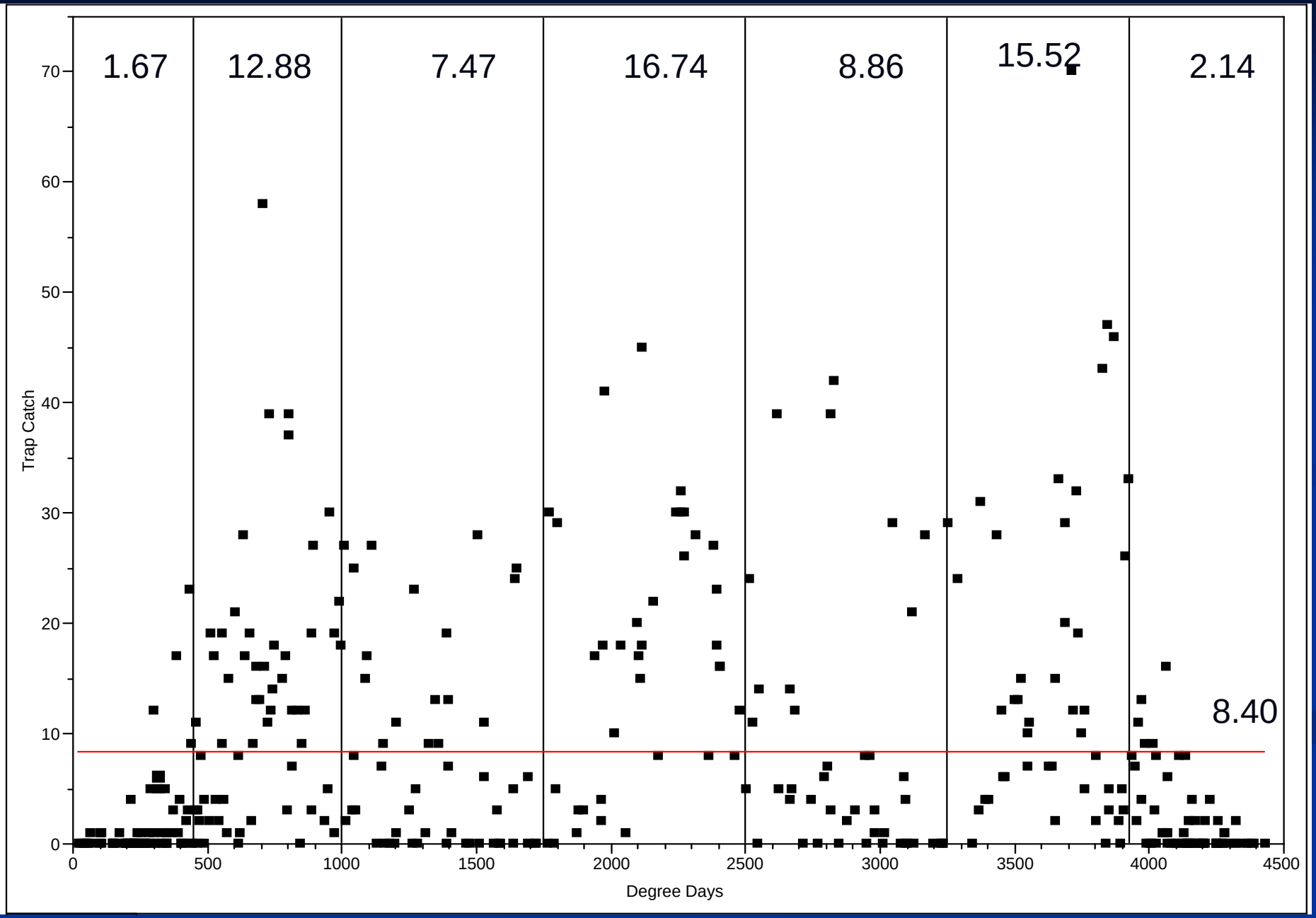
Sebring 2005 and 2006



Edisto 2005 and 2006, St Marks 2006 and Jekyll 2006



Trap Catch vs. Degree Days: All 4 sites 2005 and 2006



Cactoblastis Flight Model

- A flight model was created in NAPPFAST
- Periods of low and high flight
- Maps generated weekly

Summary

- Phenology model for *C. cactorum* is working effectively
- Flights of *C. cactorum* more defined at higher latitudes
- Planning and Management Tools are available for *C. cactorum*

Cactus Moth Phenology Mapping Site

http://www.nappfast.org or
http://aphis.zedxinc.com/

Username: cactoblastis

Password: cactusmoth

Questions?

Dan Borchert

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