

Welcome to Raleigh, y'all!

CAPS Maps Updates
March 2026

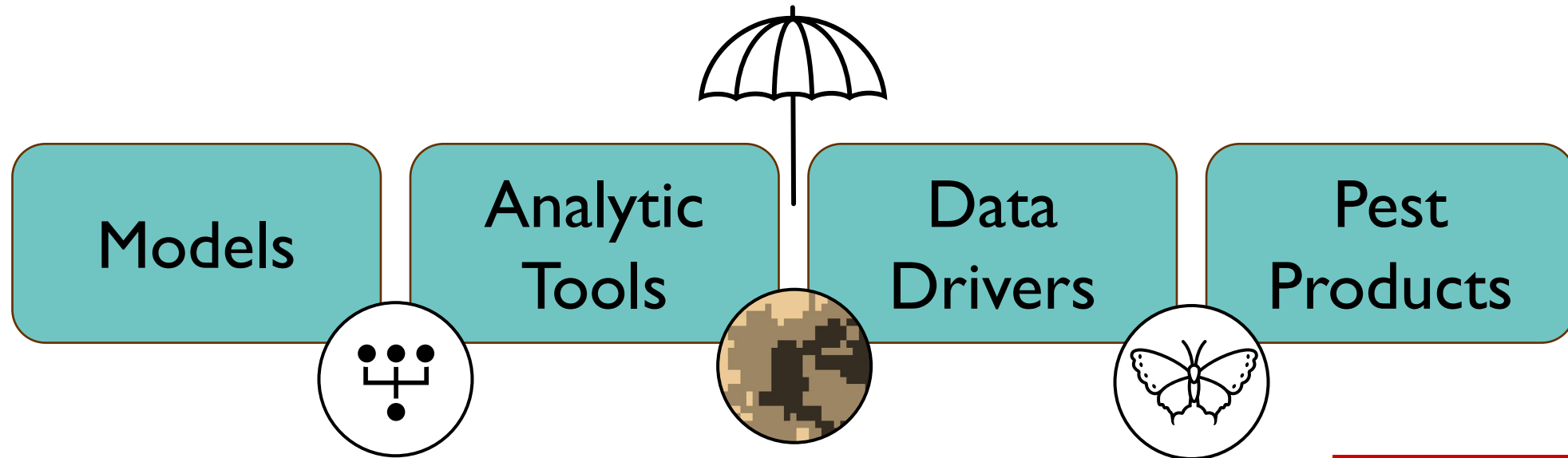


SAFARIS

Spatial Analytic Framework for Advanced Risk Information Systems

SAFARIS

Spatial Analytic Framework for Advanced Risk Information Systems



<https://safaris.cipm.info>

A collaboration between S&T & NCSU with a website that houses weather data, models, modelling tools & pest models for PPQ

NC STATE UNIVERSITY

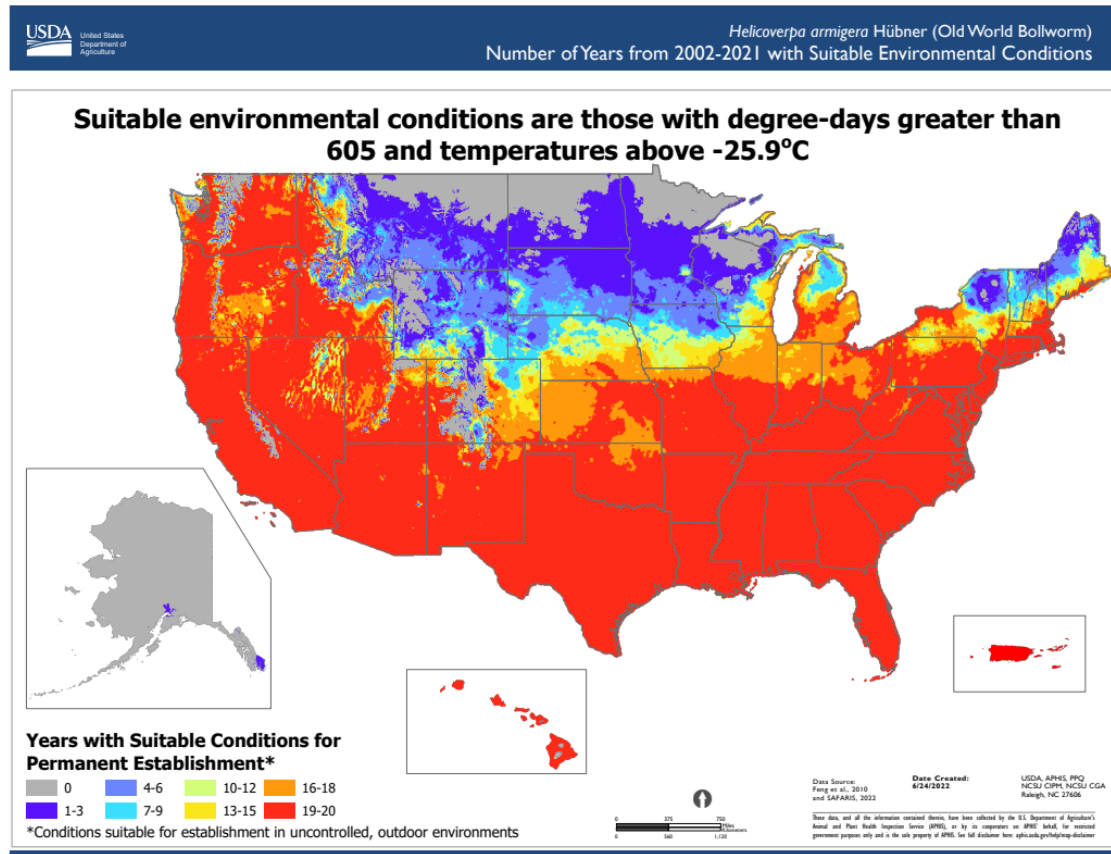
Yu Takeuchi

Center for Integrated Pest Management

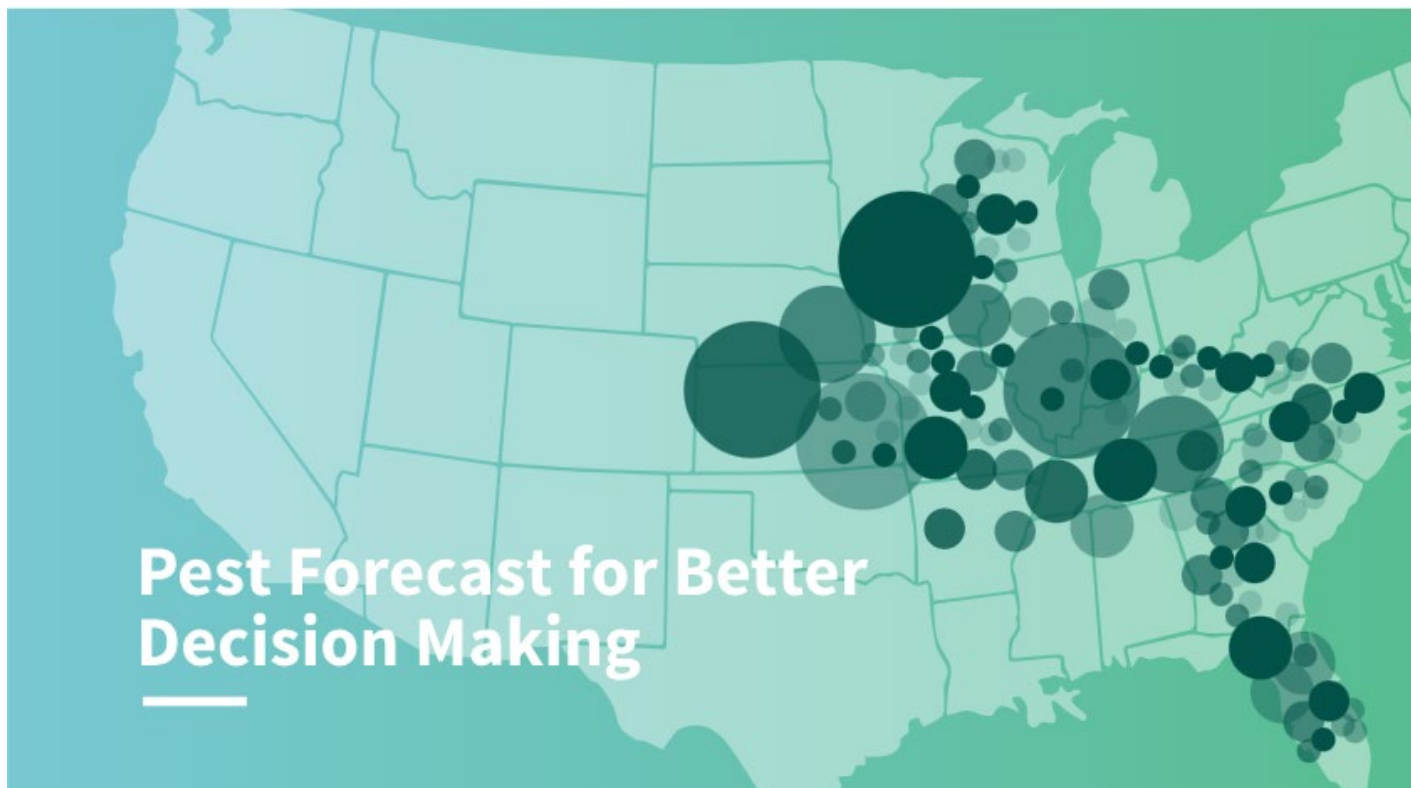


Likelihood of Establishment Maps for Pest Surveillance

Pest Prioritization and Early Detection Survey Planning



- Interactive maps show where pests could establish
- Additional maps show number of generations, flight activity, etc.
- Uses 20 years of historical weather data
- Used by PPQ, State Departments of Agriculture and other CAPS partners



- FY25 Recap
- FY26 Maps
- New color schemes!

Pests Mapped in FY 25

New Pests

Laodelphax striatellus - Small brown planthopper

Tecia solanivora - Guatemalan Potato Moth

Bursaphelenchus cocophilus - Red Ring nematode

Hymenoscyphus fraxinus - Ash Dieback

Stenoma catenifer - Avocado seed moth

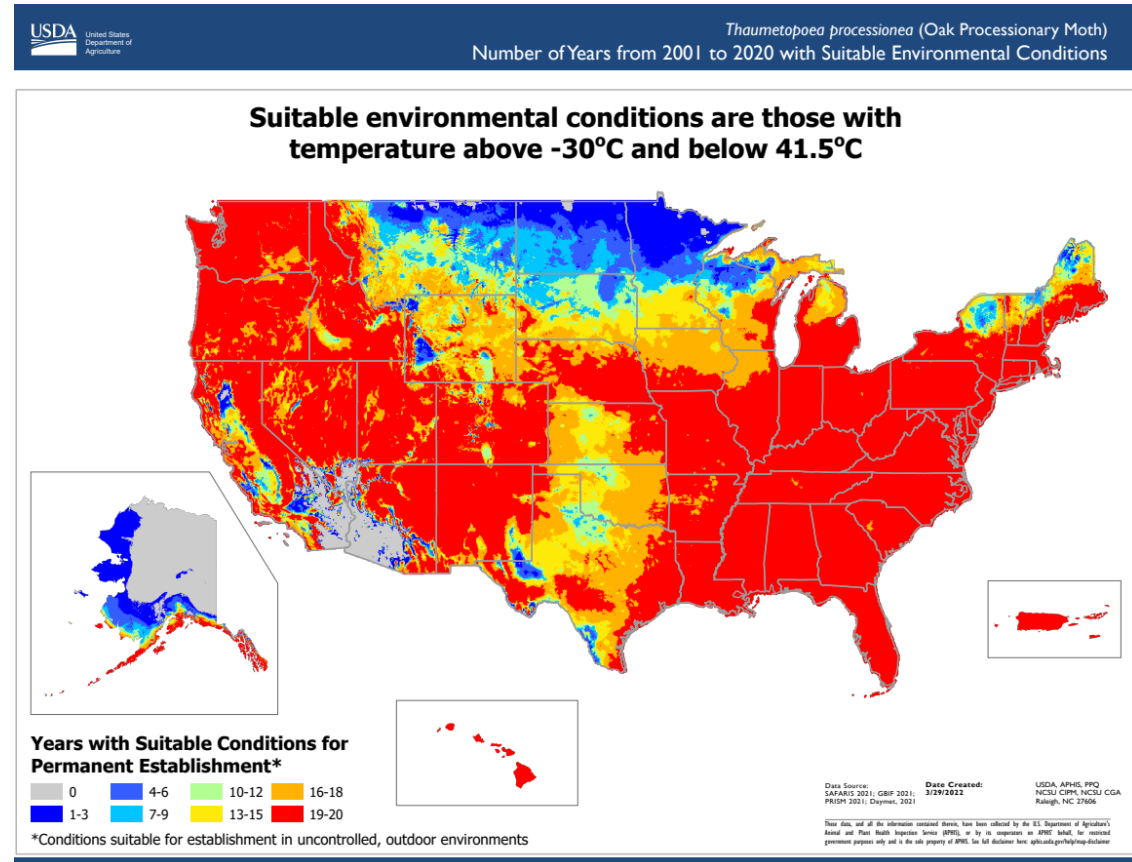
Add AK and HI

We have created that data since these were released!

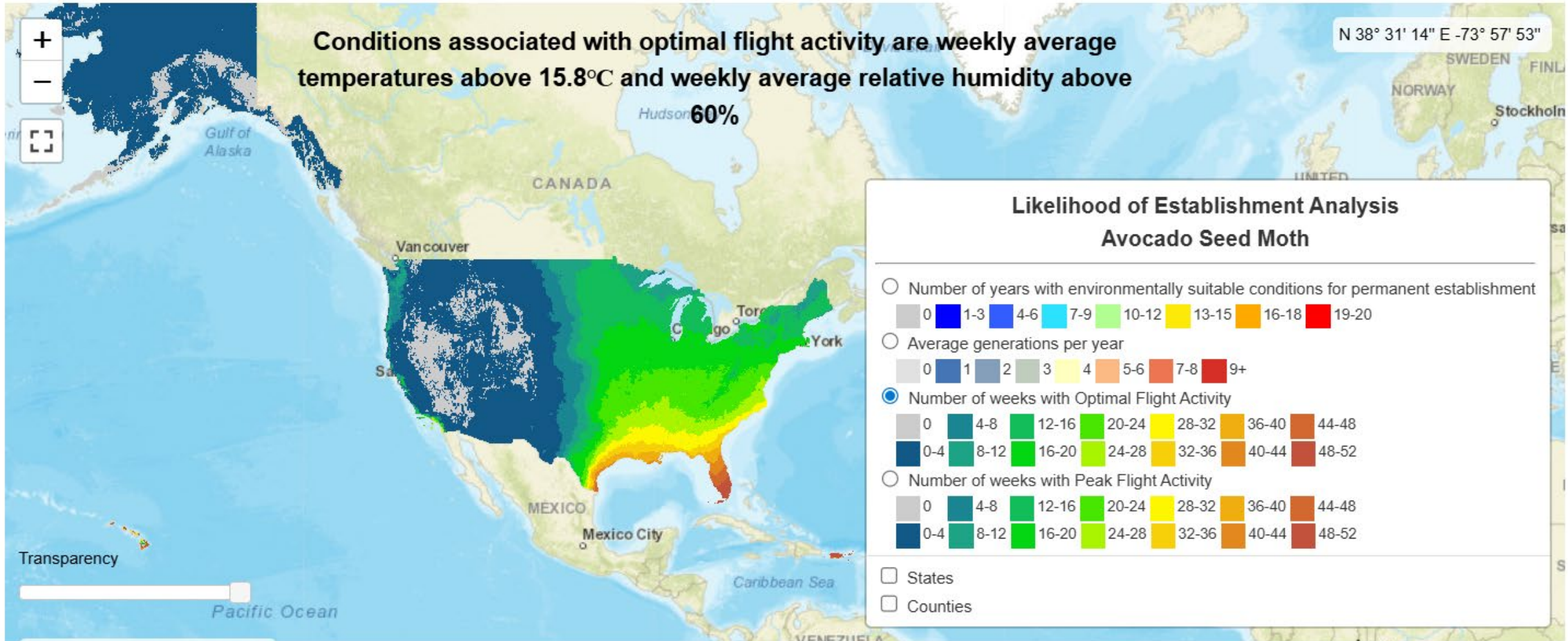
Revisions

Lycorma delicatula - Spotted Lanternfly

Thaumetopoea processionea - Oak Processionary Moth



More Supplemental Maps When We Can!



Pests Planned for FY 26

New Pests

Oxycarenus hyalinipennis - Cotton seed bug

Map is Live!

Lymantria albescens + *postalba* - ivory spongy moth + white-winged spongy moth

Neoleucinodes elegantalis - Tomato Fruit Borer

Meloidogyne artiellia - British Root Rot Nematode

Rhagoletis cerasi - European cherry fruit fly

Tricky Life Cycle!

Megaplatypus mutatus - An ambrosia beetle

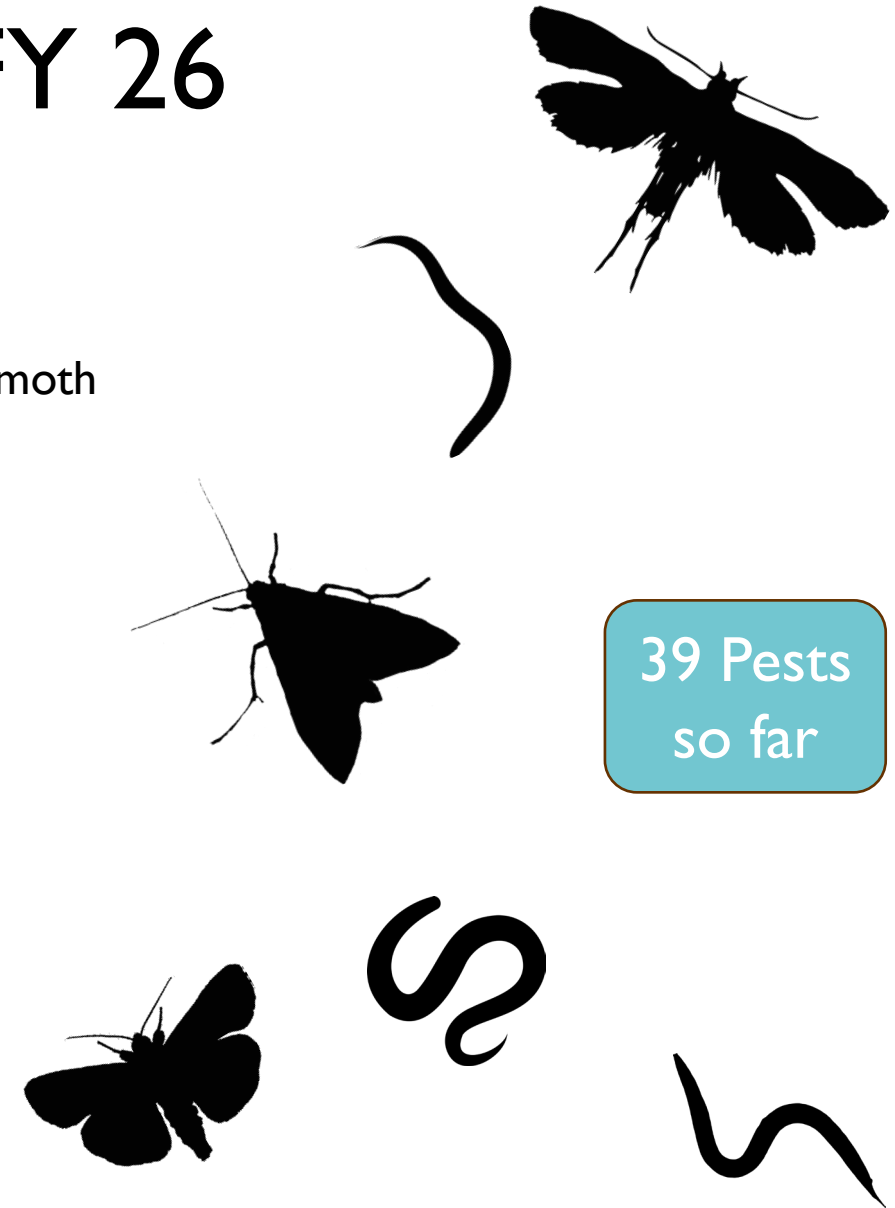
Globodera pallida - Pale cyst nematode

39 Pests
so far

Revisions

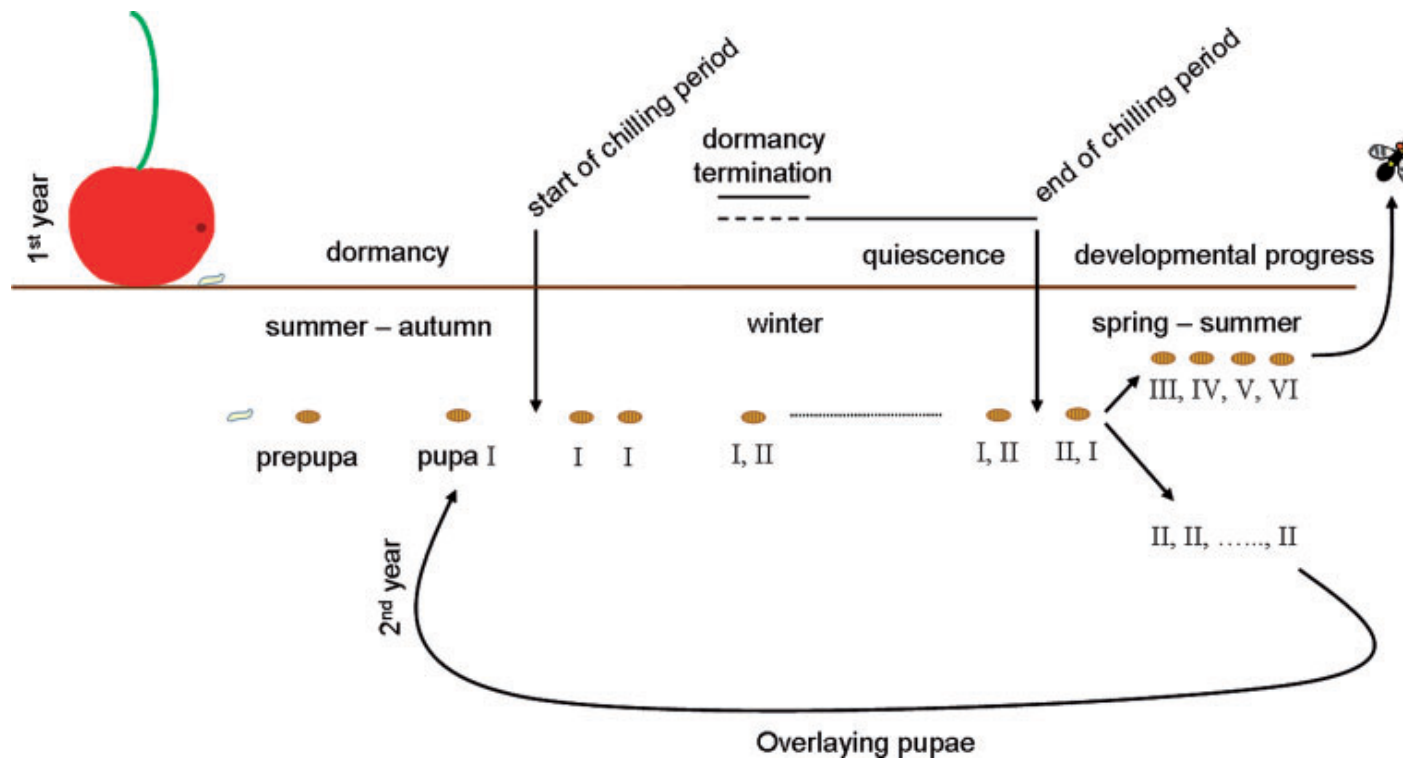
Cydalima perspectalis - Box tree moth

Phthorimaea absoluta - Tomato leaf miner

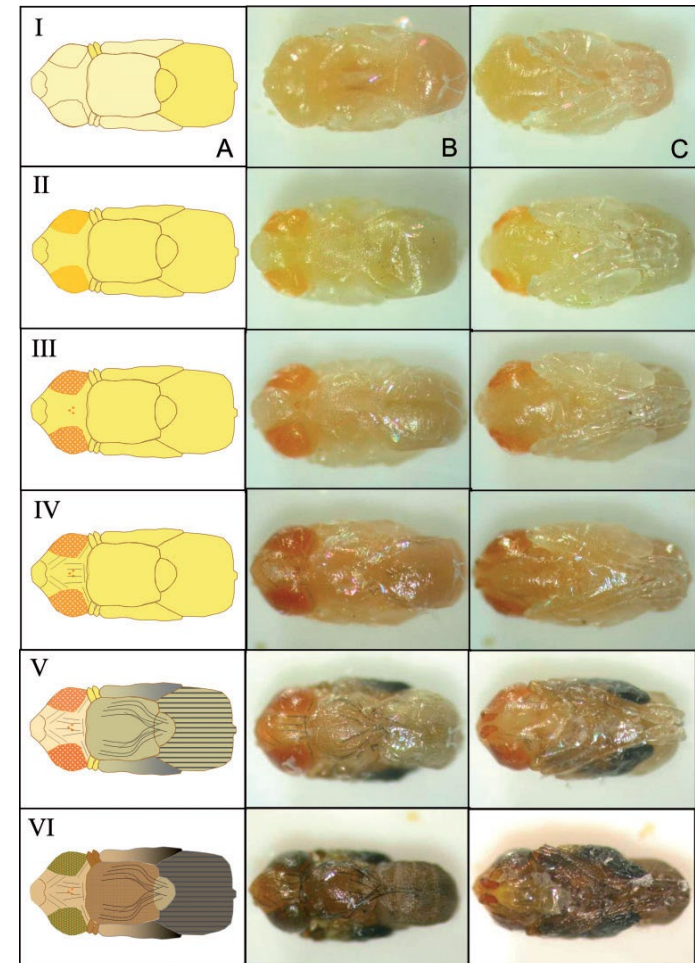


Tricky Life Cycle!

European Cherry Fruit Fly



Pupa can revert and wait for next year



New Map Colors!

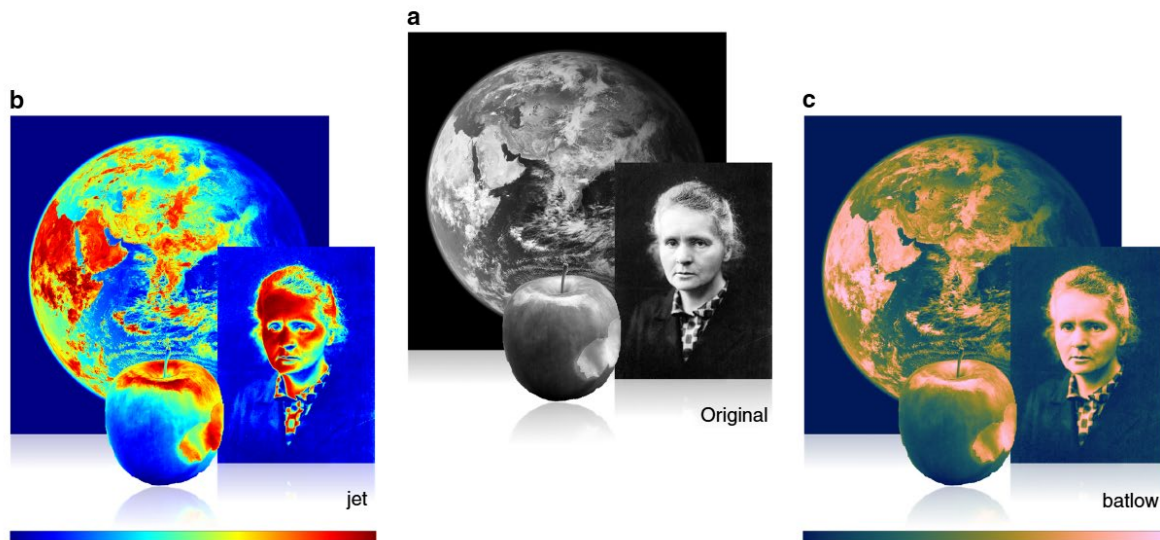
Color Is Tricky, Especially on Maps!

NATURE COMMUNICATIONS | <https://doi.org/10.1038/s41467-020-19160-7>

PERSPECTIVE

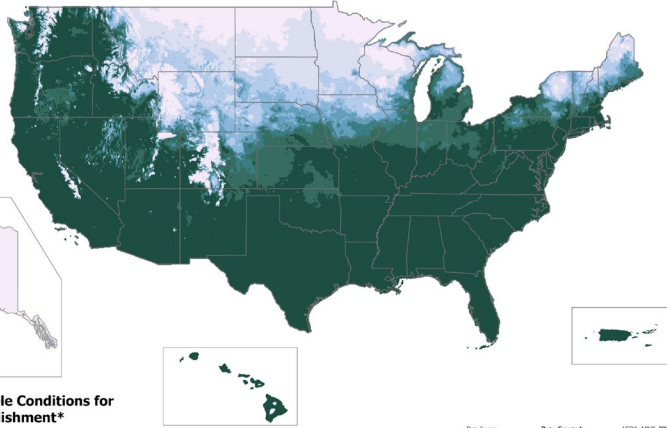
We're aiming for our maps to

- Fairly represent the data
- Make intuitive sense
- Be universally readable
- Be recognizable across pests



Developed 4 New Color Themes!

Suitable environmental conditions are those with degree-days greater than 605 and temperatures above -25.9°C

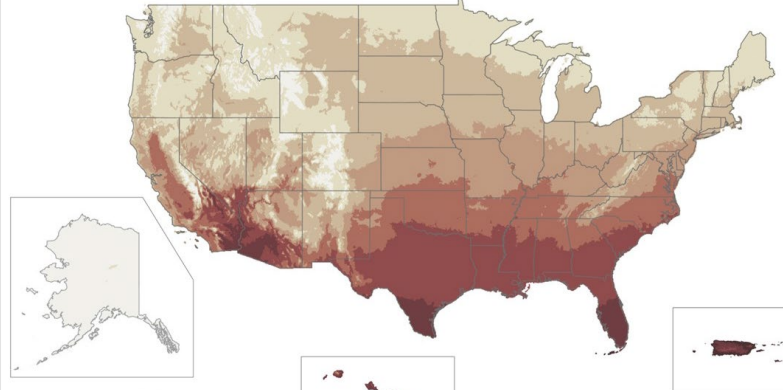


Years with Suitable Conditions for Permanent Establishment*



*Conditions suitable for establishment in uncontrolled, outdoor environments

Required degree-days for one generation is 605 with the lower and upper developmental threshold temperatures at 11.6°C and 38°C. The number of generations includes the overwintering generation.

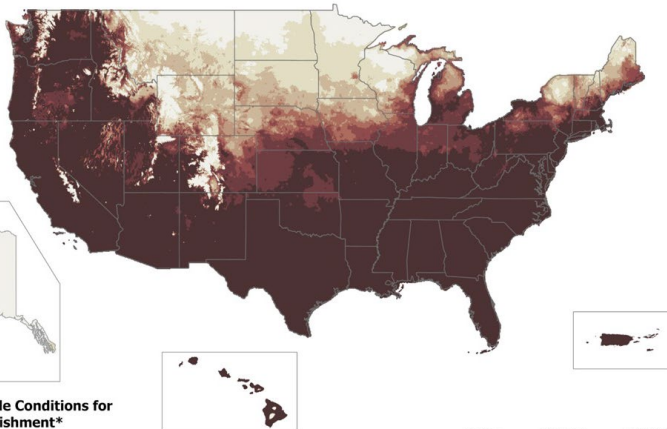


Average Number of Generations per Year*



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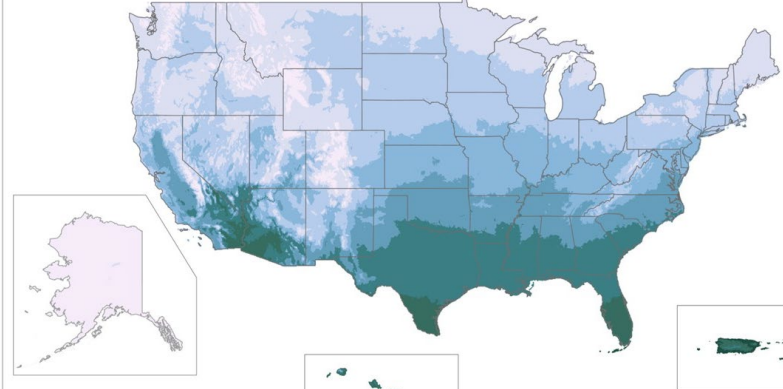


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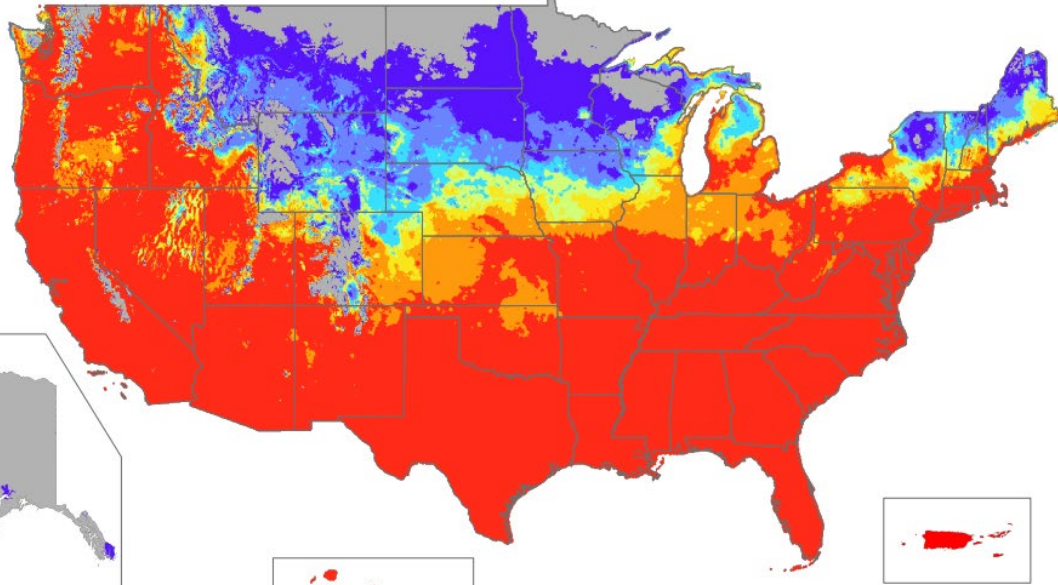


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- For maps with 8 & 13 categories
- Address 508-compliance goals
- More intuitive & recognizable

Old World Bollworm- Likelihood of Establishment

Suitable environmental conditions are those with degree-days greater than 605 and temperatures above -25.9°C



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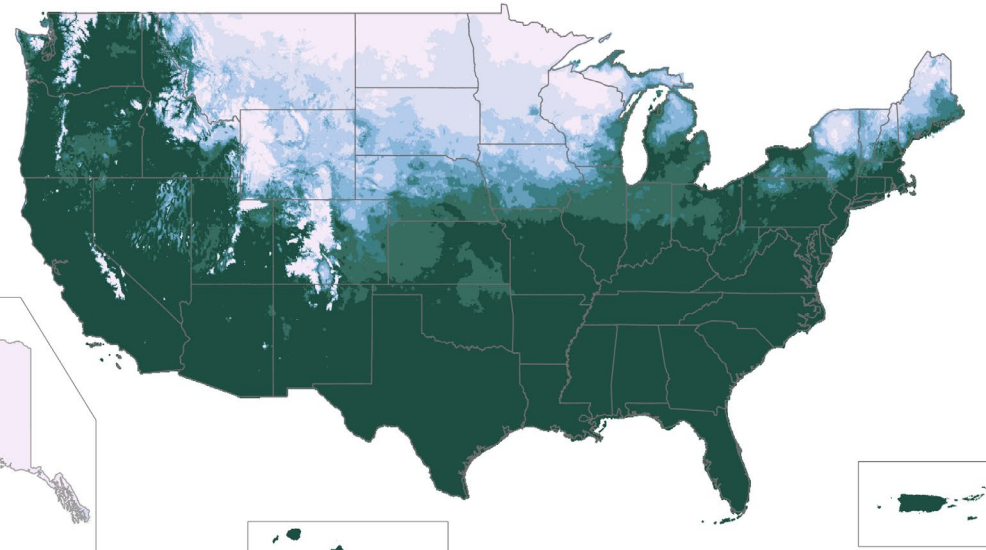


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Data Source: Feng et al., 2010 and SAFARIS, 2022
Date Created: 6/24/2022
USDA, APHIS, PPO, NCSU, CPM, NCSU, CGA, Raleigh, NC 27606

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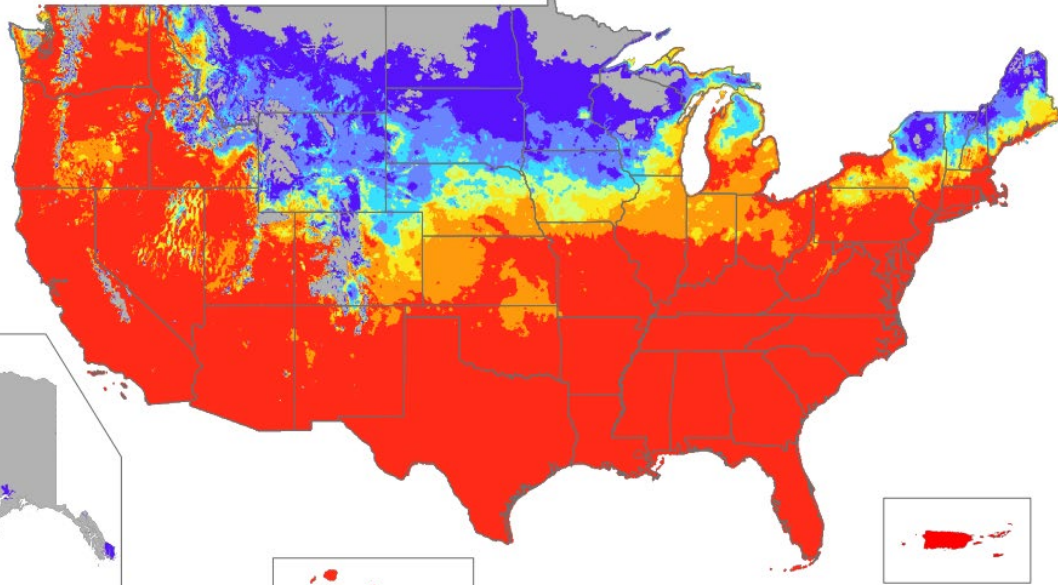
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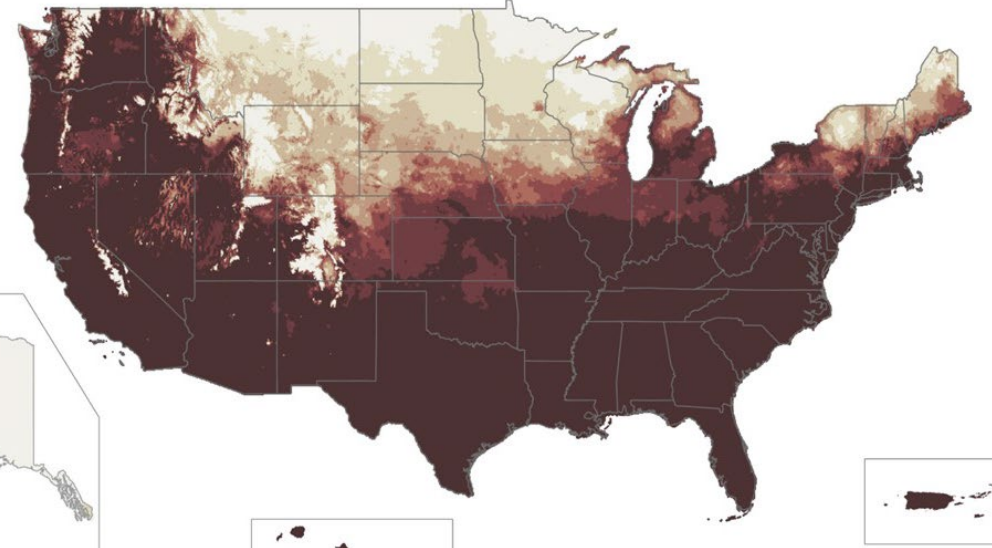


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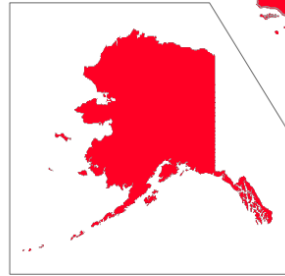
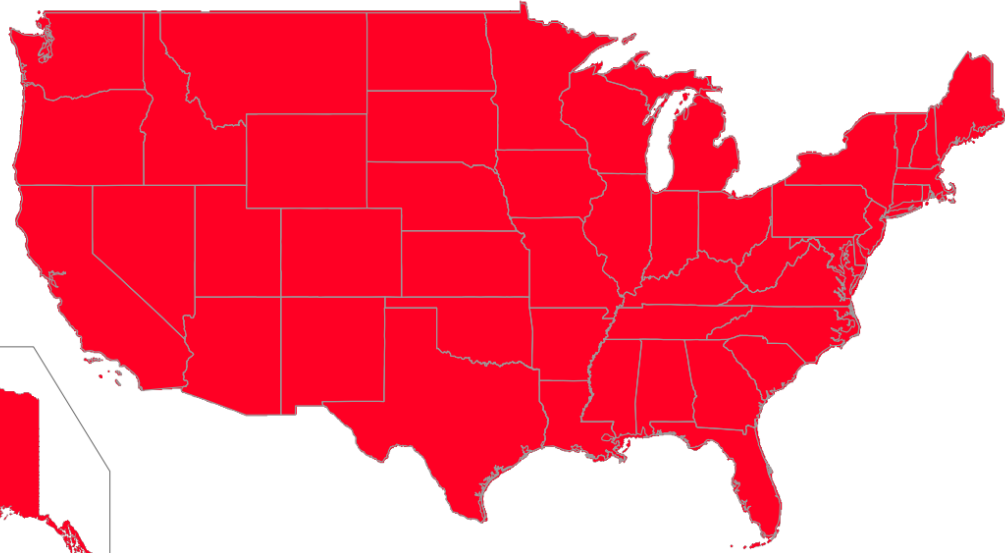
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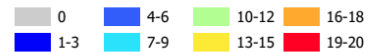
Likelihood of Establishment Map

A Pest Not Limited by Environmental Conditions

The distribution of this pest is not likely limited by environmental conditions that are amenable to modeling



Years with Suitable Conditions for Permanent Establishment*

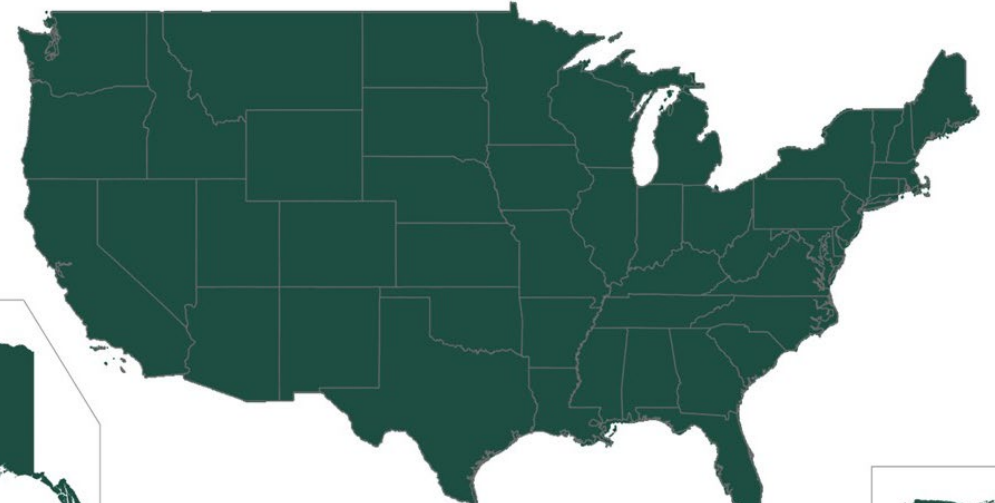


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Years with Suitable Conditions for Permanent Establishment*



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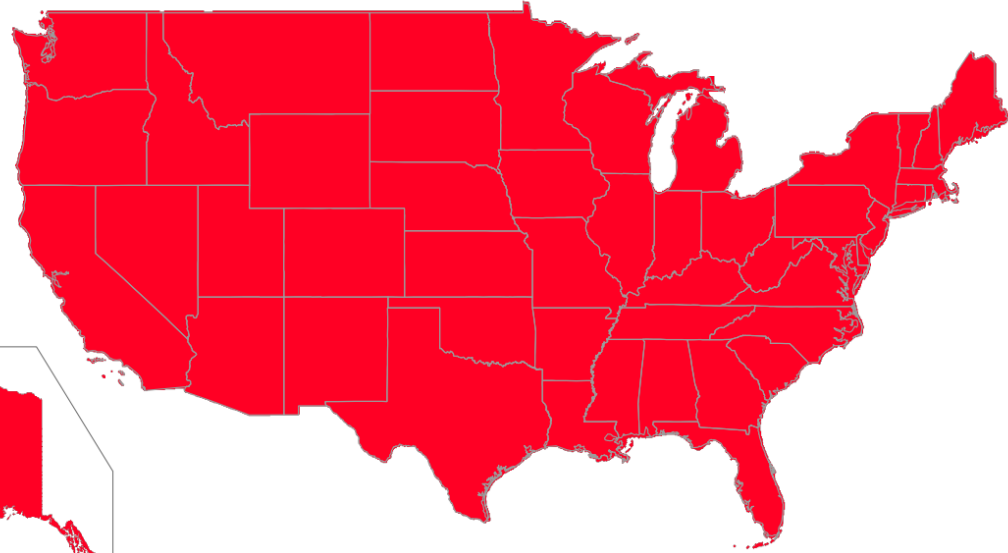
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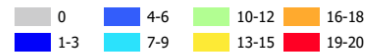
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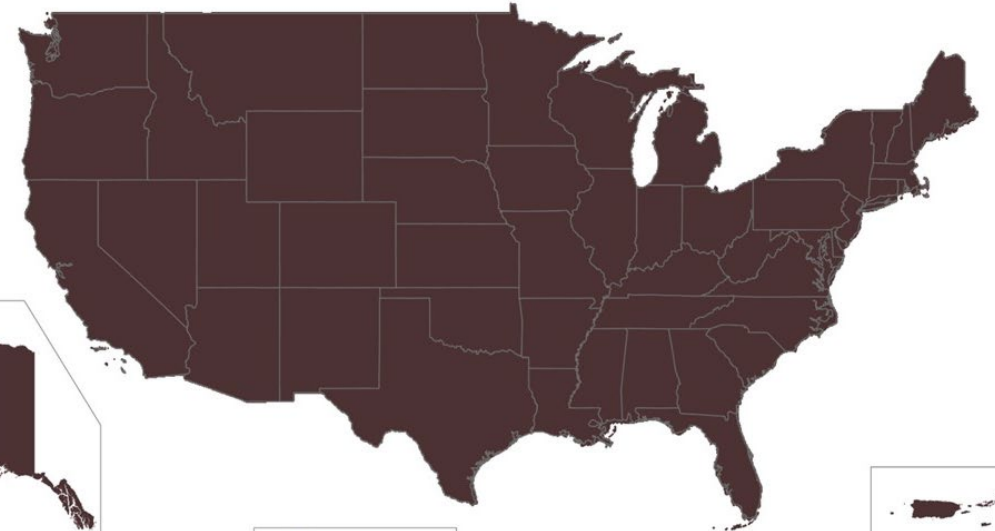


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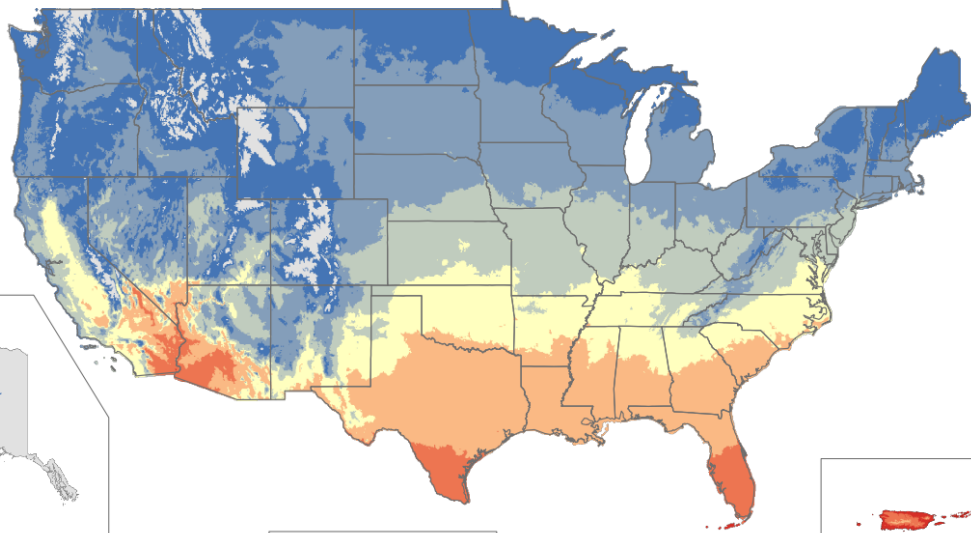
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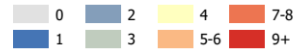
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Old World Bollworm- Average Number of Generations

Required degree-days for one generation is 605 with the lower and upper developmental threshold temperatures at 11.6°C and 38°C . The number of generations includes the overwintering generation.



Average Number of Generations per Year*

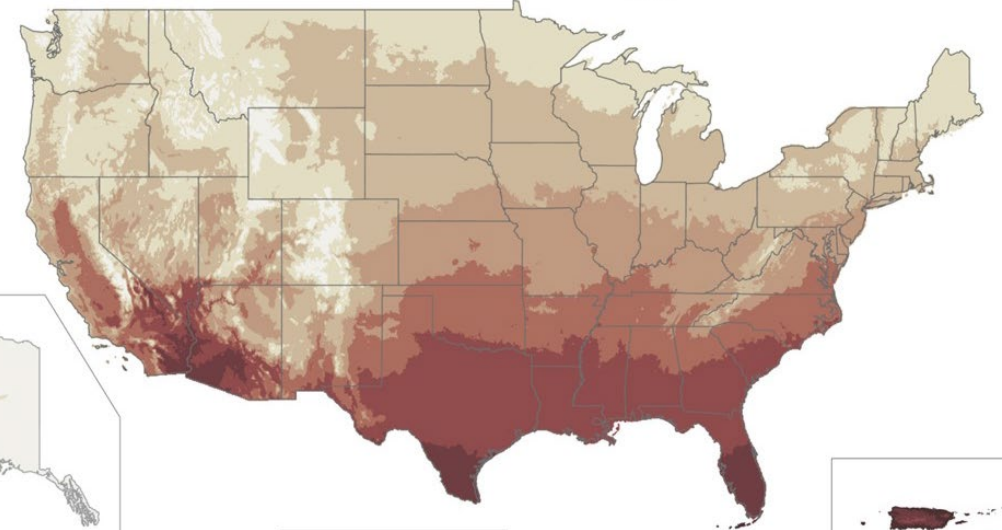


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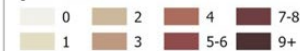
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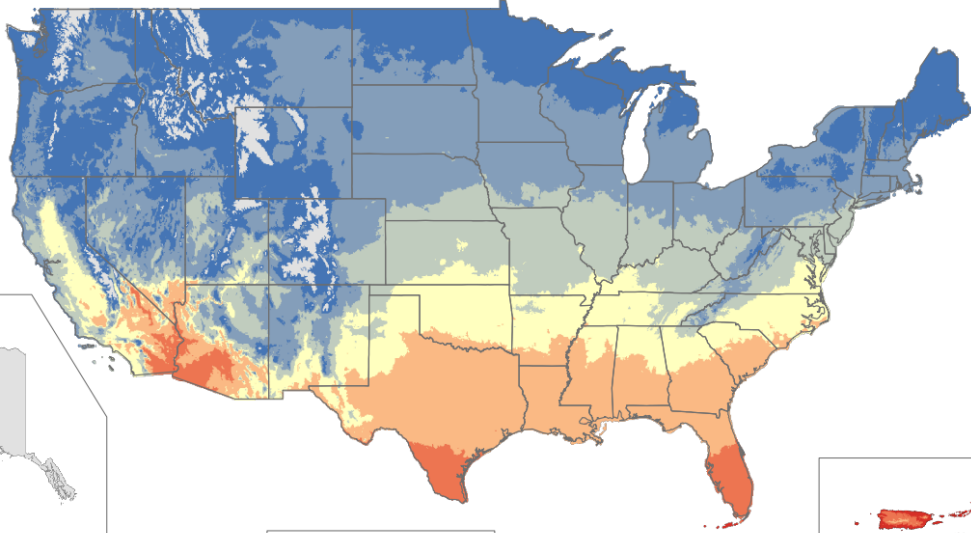
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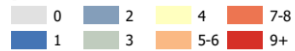
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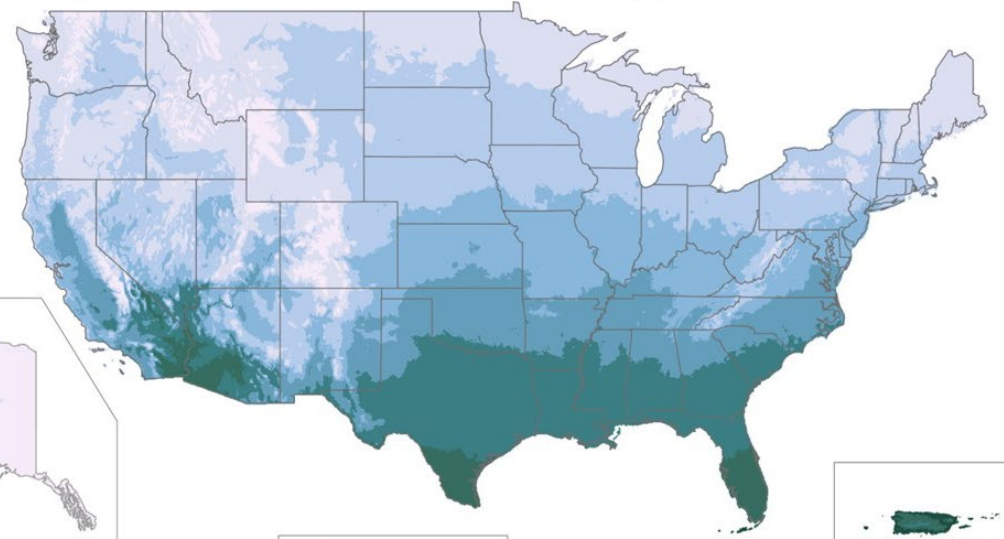


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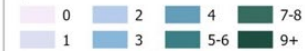
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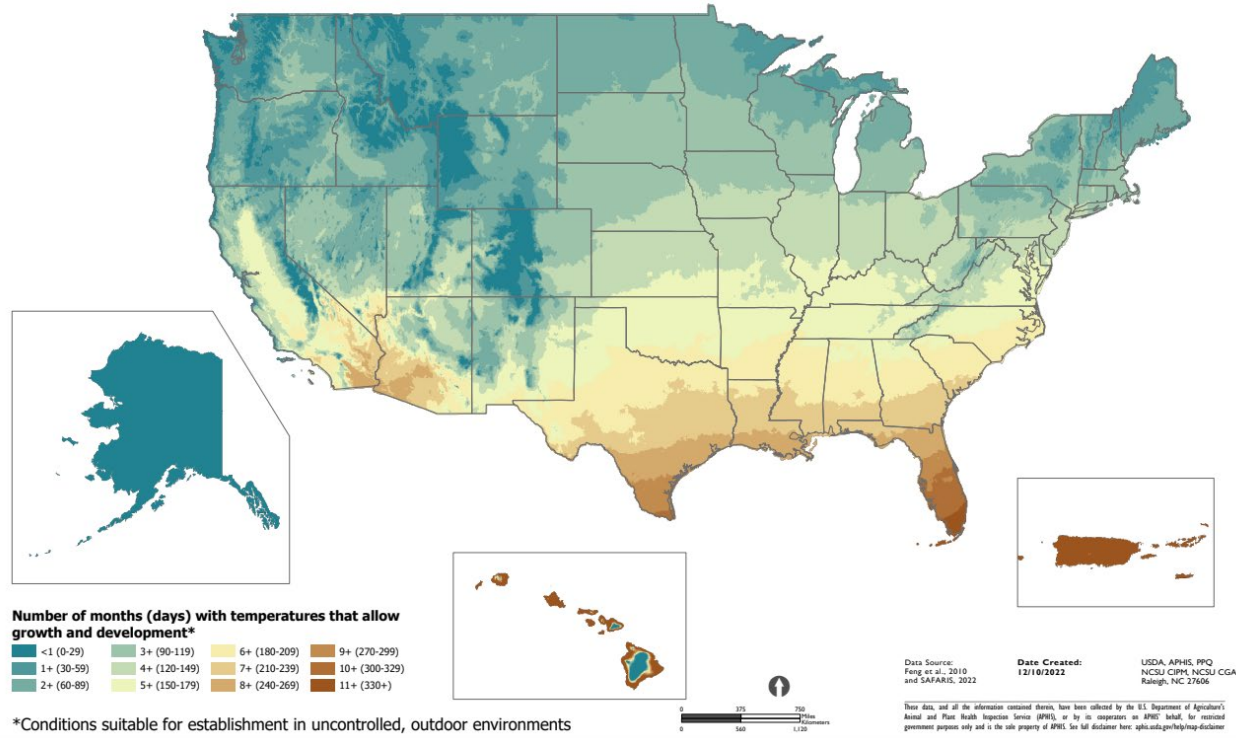
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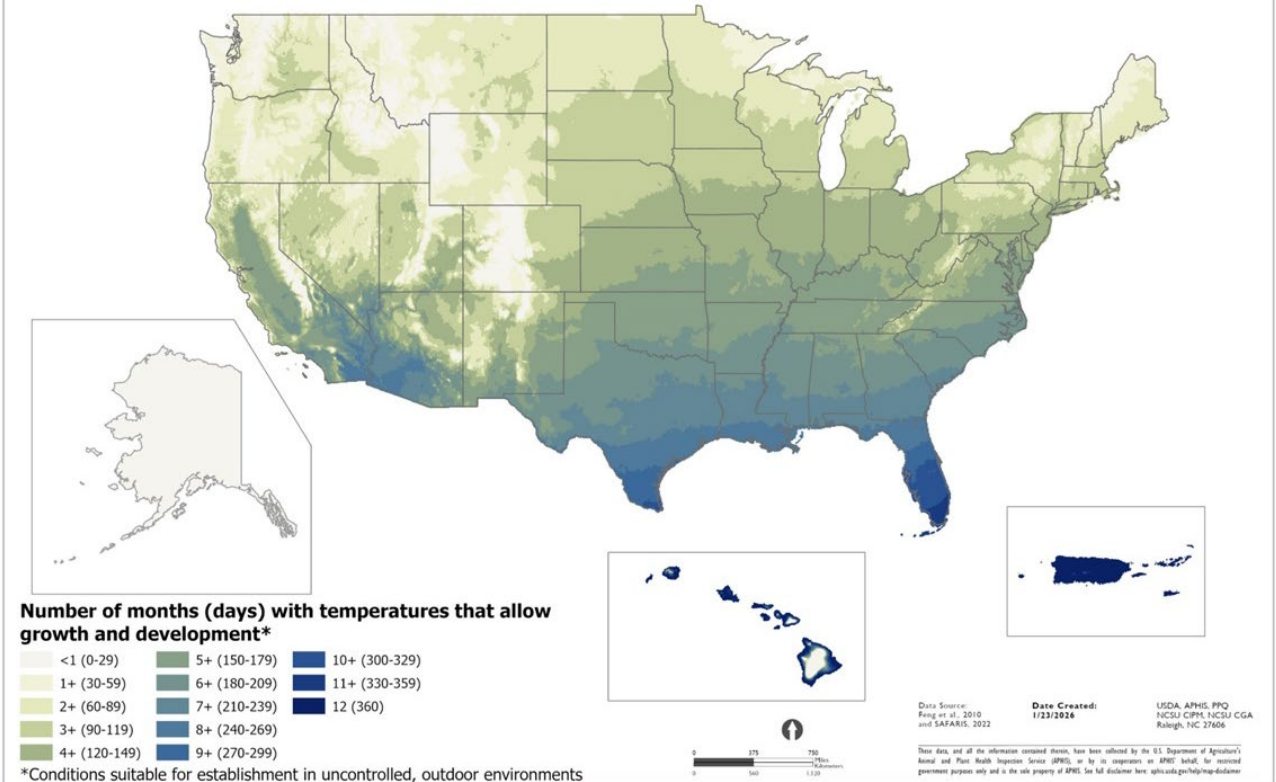
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Old World Bollworm- Number of Months that....

Temperatures that allow growth and development are between 17.5°C and 37.5°C



Temperatures that allow growth and development are between 17.5°C and 37.5°C.

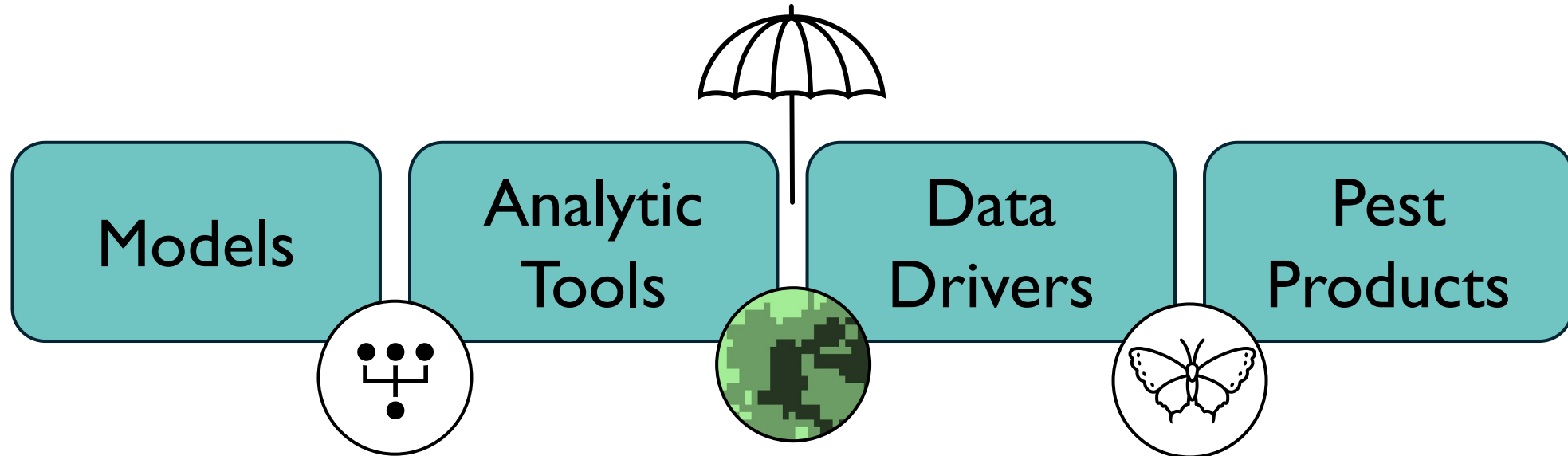




- Favorite Pests?
- Questions?
- Complaints?
- Suggestions?

SAFARIS Website

<https://safaris.cipm.info>



Email me at: amber.tripodi@usda.gov