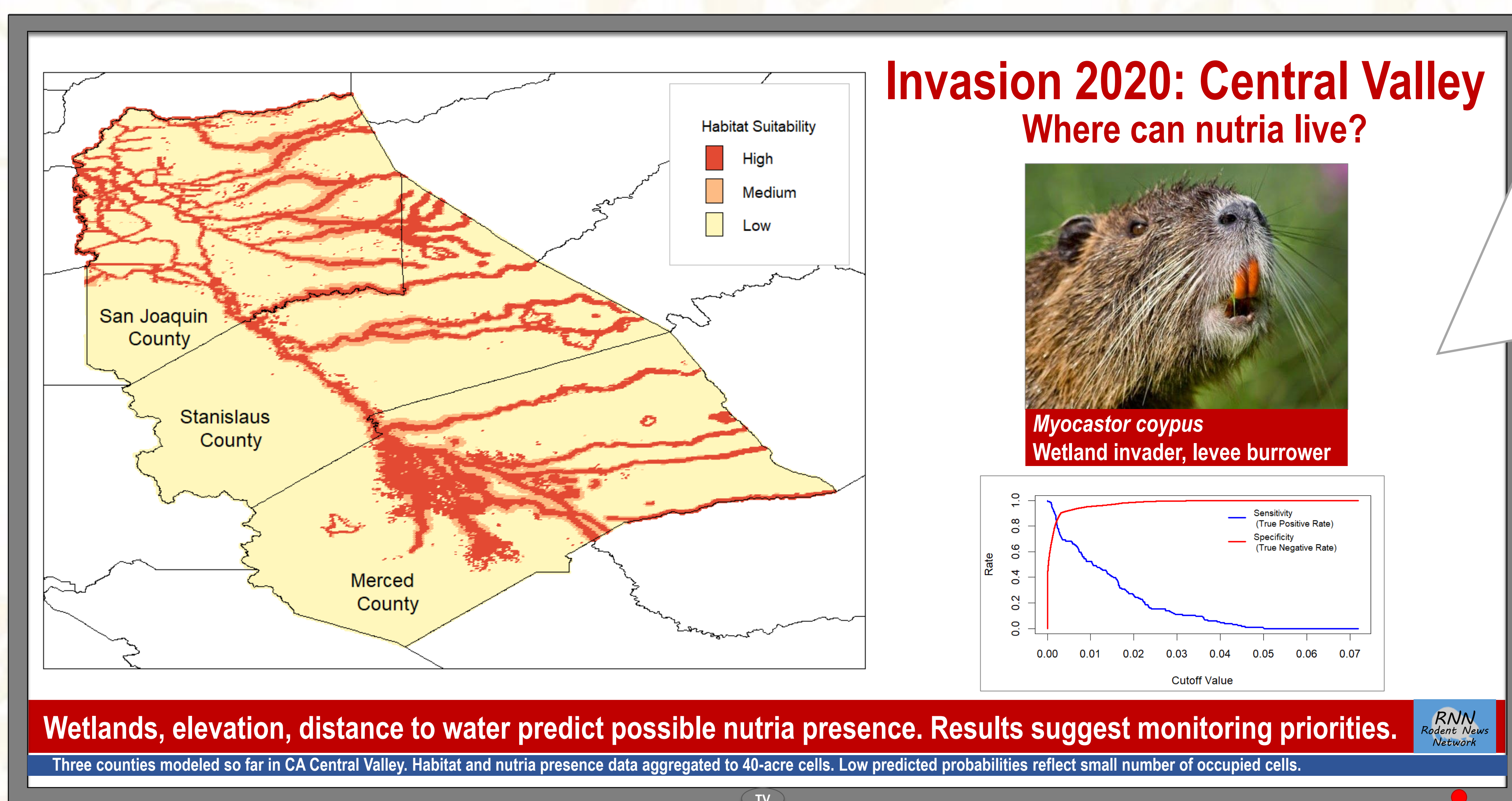
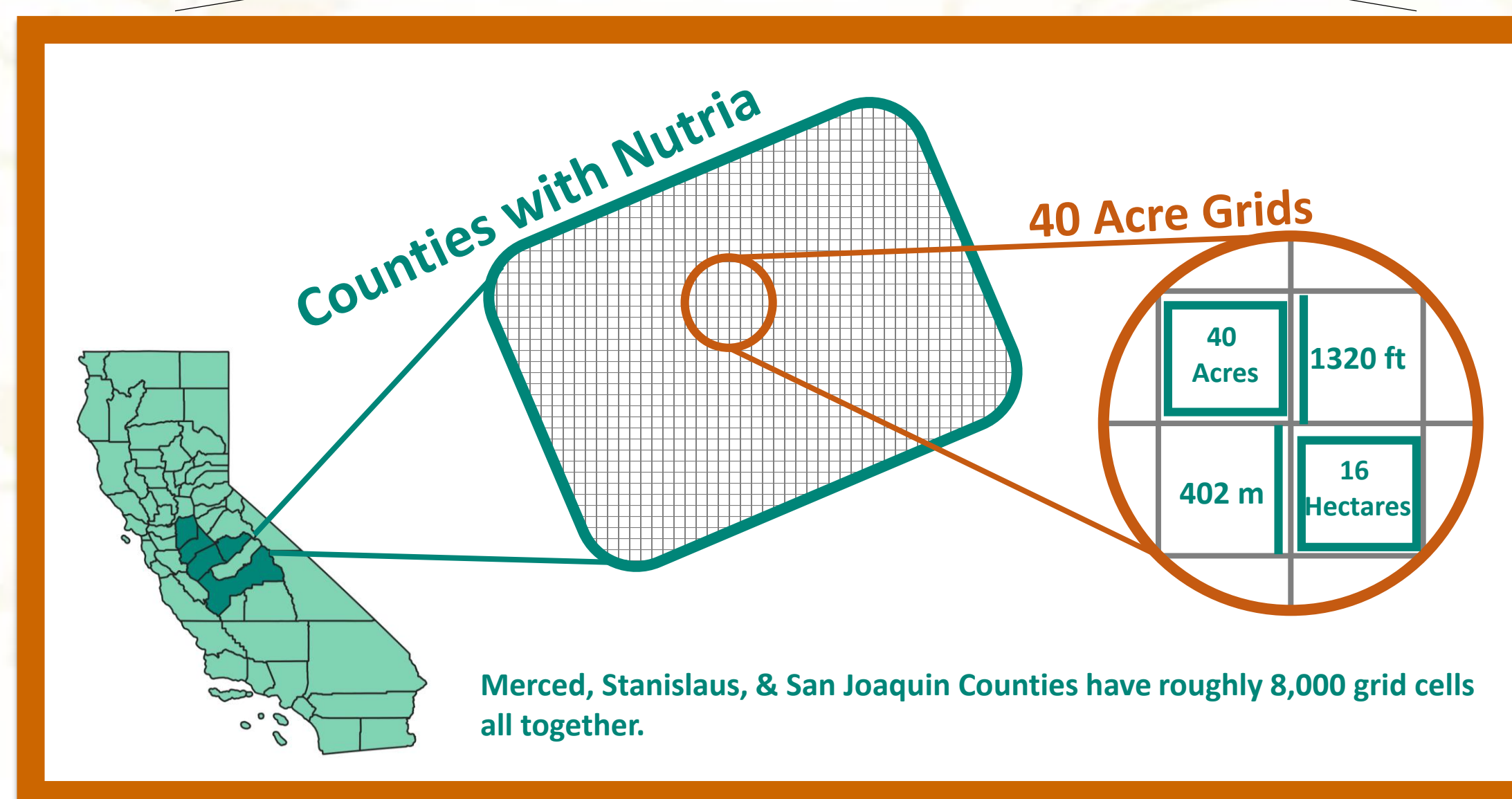
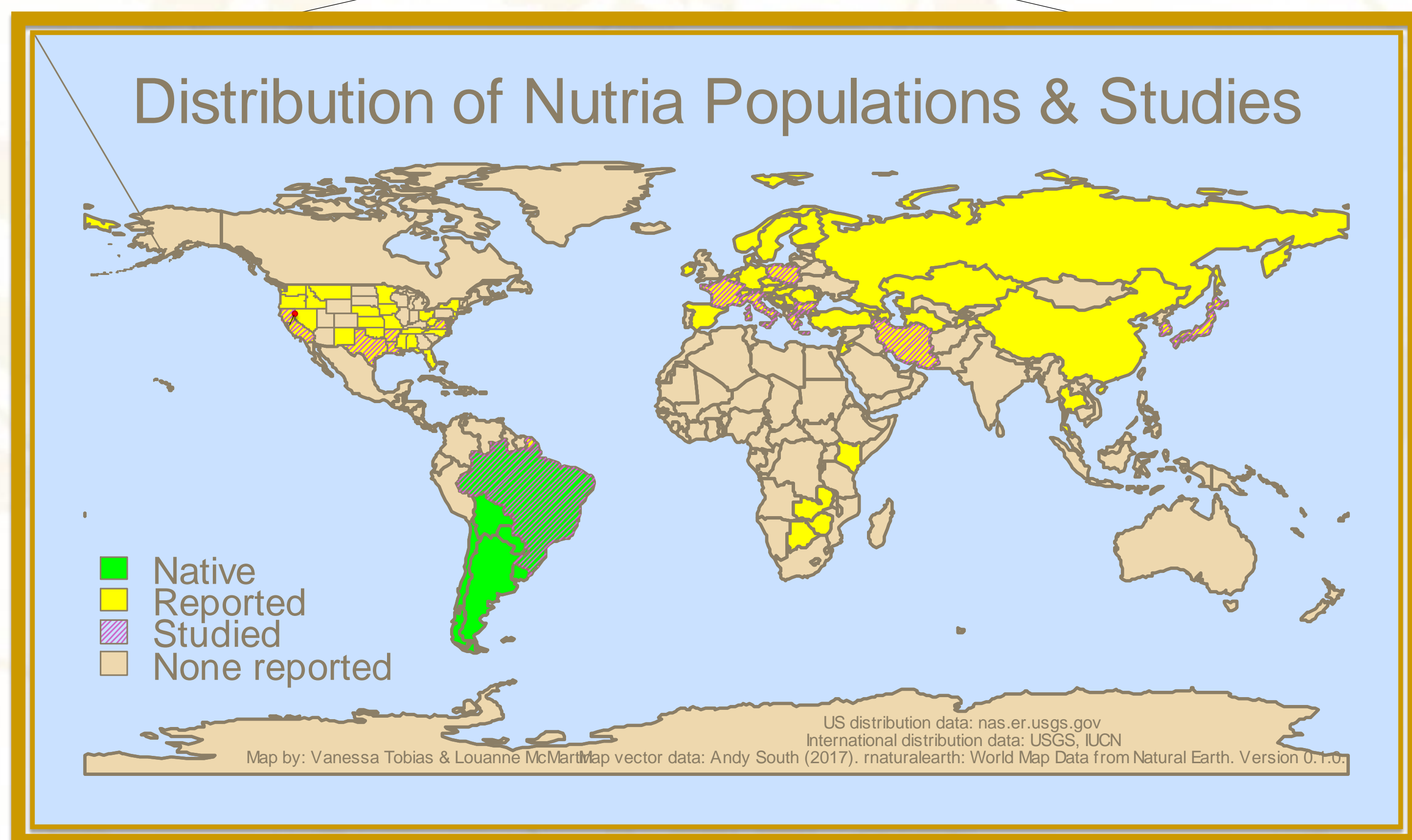


Sunny with a chance of nutria

modeling invasive species habitat with data from an eradication program

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Researchers fit a logistic regression using a Generalized Additive Model (or GAM) with estimation by restricted maximum likelihood. Presence in a grid cell was modeled as a function of percent wetland cover, elevation, distance to nearest water, and the interactions of those three habitat variables. The map shows good and bad habitat areas that were predicted by the model. Cutoff values on the map are based on sensitivity and specificity values.

- TO DO:**
- Compile Data
 - Animal locations
 - Habitat
 - Vital rates
 - Fit Models
 - Habitat model
 - Dispersal simulation model
 - Create a combined Map Distribution & Timing



CDFW Nutria Team,
Thank you!
Thanks for sharing your data with us! Let's talk soon about results and next steps.
- The modeling team



Modeling Team

A few lessons we've learned from using eradication data for habitat modeling:

- Communication is key! We're building trust as well as models and maps.
- There is a steep learning curve to working with data that someone else collected for a different purpose than yours.
- We need to think through the sampling frame and use fewer negative cells to train the next generation of habitat models.

```
captureDetails <- read.csv(
  "NutriaCaptureDetails_201912.csv")

plot(mercedBorder)
plot(newCellMerced, add=TRUE)

hydroDist <- habitatData$HydroDist
elevation <- habitatData$SElevation
wetland <- habitatData$Wetland

# Fit the model
fit <- jags.parallel(data=jags.data,
  model.file="forecast_nutria_bug",
  parameters.to.save=jags.params, n.chains=10,
  n.iter=100000, n.burnin=80000, n.thin=10,
  n.cluster=10)
```

Work on dispersal simulation!

Refine sampling frame for habitat model!

Update habitat model with new data!