

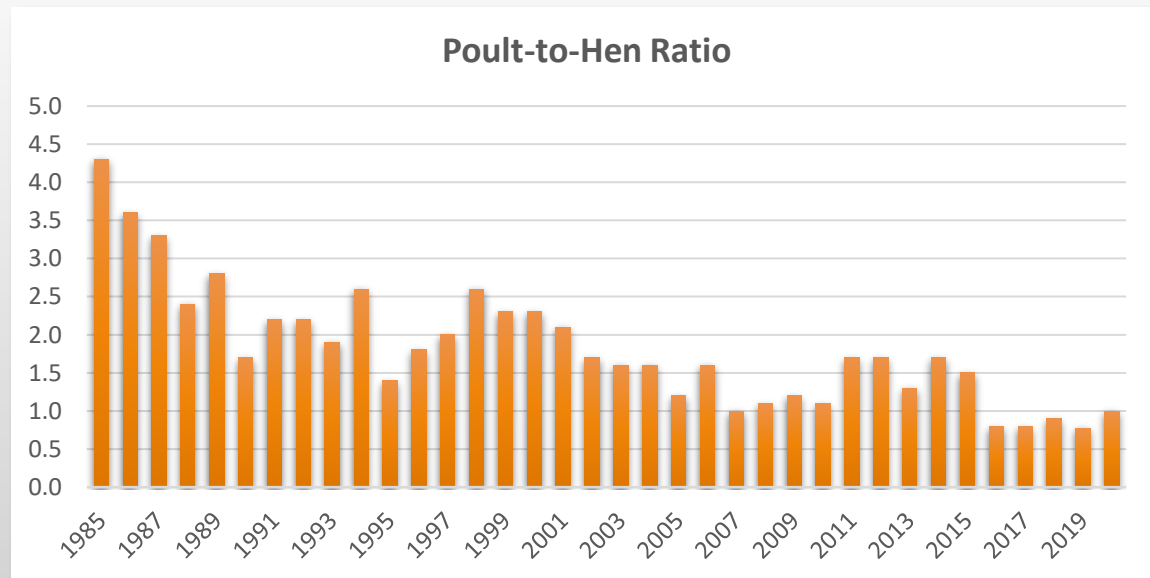
# Factors Influencing Wild Turkey Nest Success and Poult Survival in North Missouri

Reina Tyl and Laura Conlee, Missouri Department of Conservation  
Dr. Mitch Weegman and Dr. Mike Byrne, University of Missouri



# Project Justification

- Long-term declining trend in production
  - Near record-low production last few years
- Turkey abundance is at its lowest level in decades
  - Concerned stakeholders



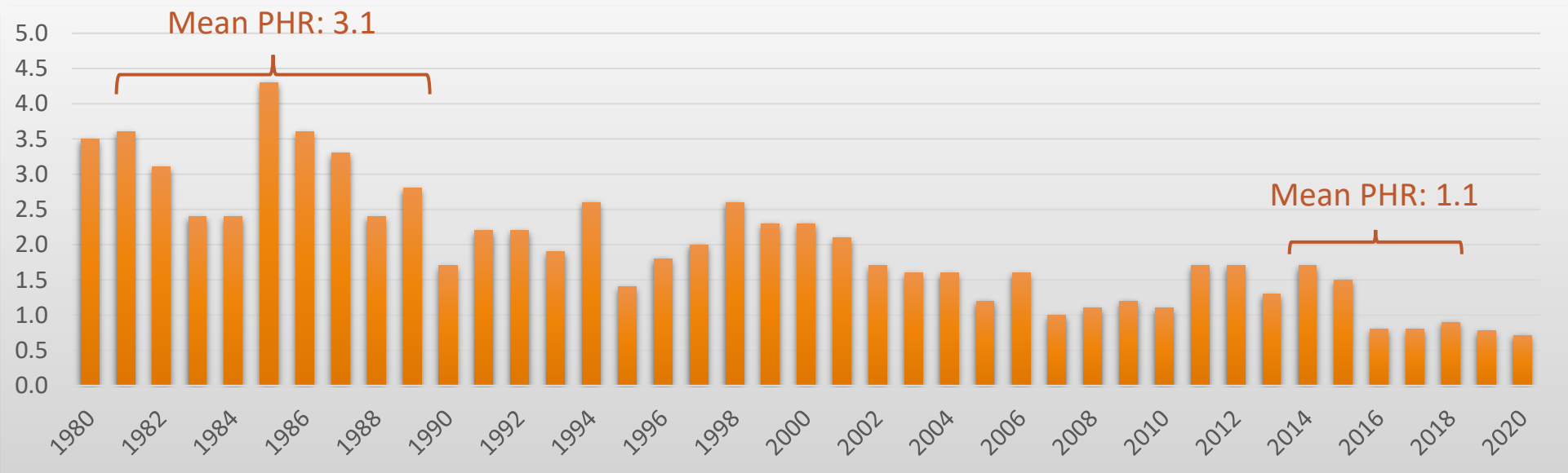
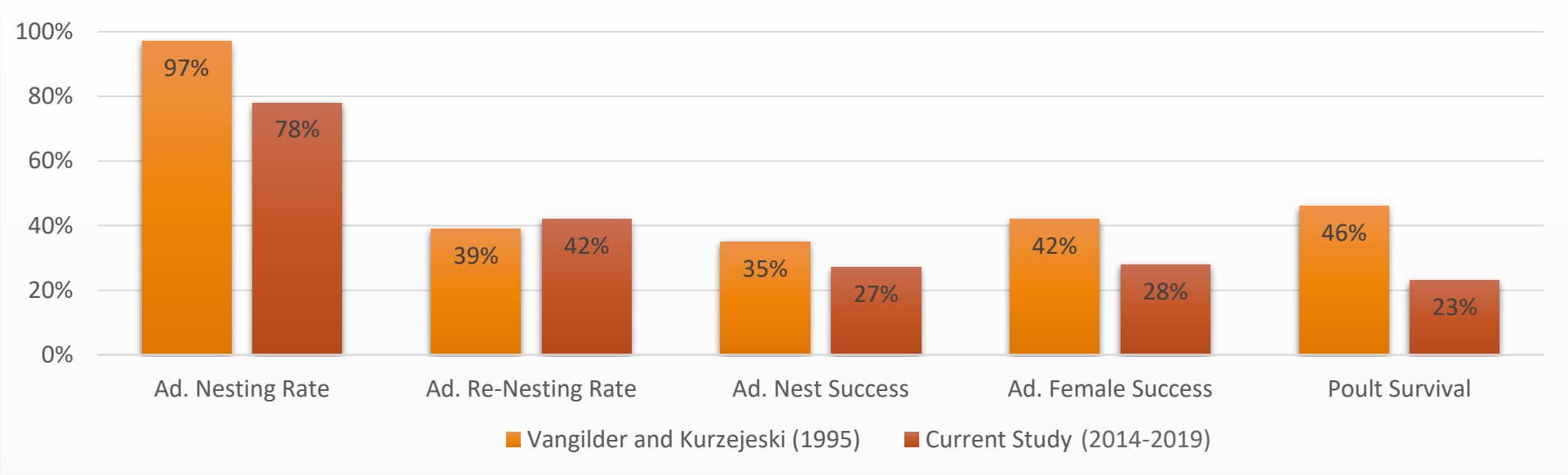
# Project Justification

## 2014-2019 Northeast MO Research Findings:

- Survival rates for all sex- and age-classes comparable to or greater than other estimates from literature (when turkey populations were growing)
- Low harvest rates during the spring
  - Sustainable spring harvest rates given low recruitment
- Low fall harvest rates
  - About 1% harvest rate of hens during fall hunting seasons
  - Models indicate that reducing/prohibiting female harvest in fall will have little impact to overall abundance
- Several reproductive rates lower than in 1980s
  - Suggests low recruitment is causing reduced turkey abundance

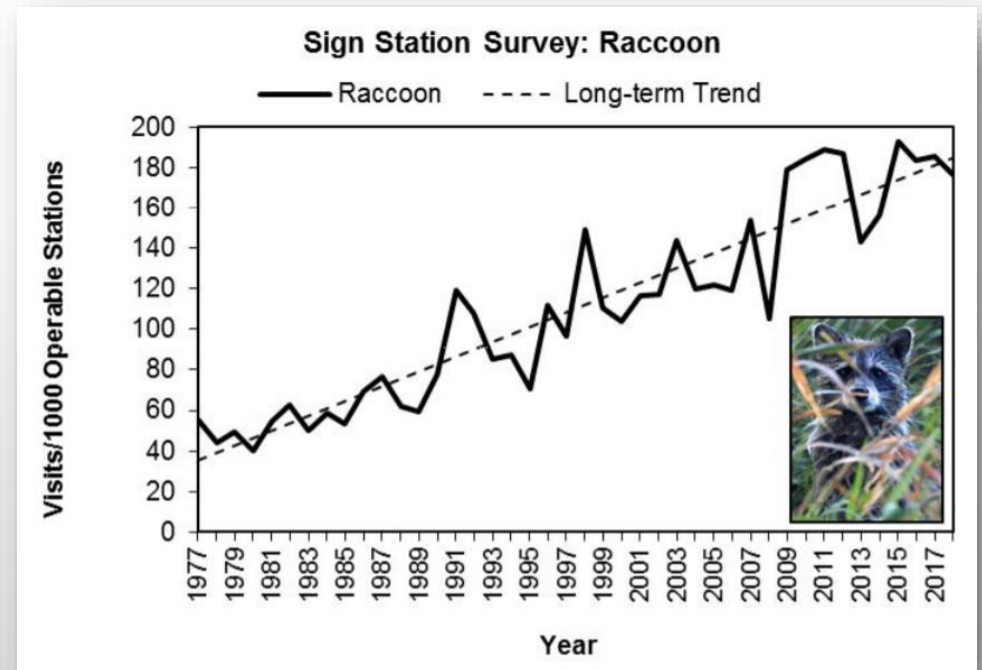


# Productivity: Comparison to North MO 1981-1989



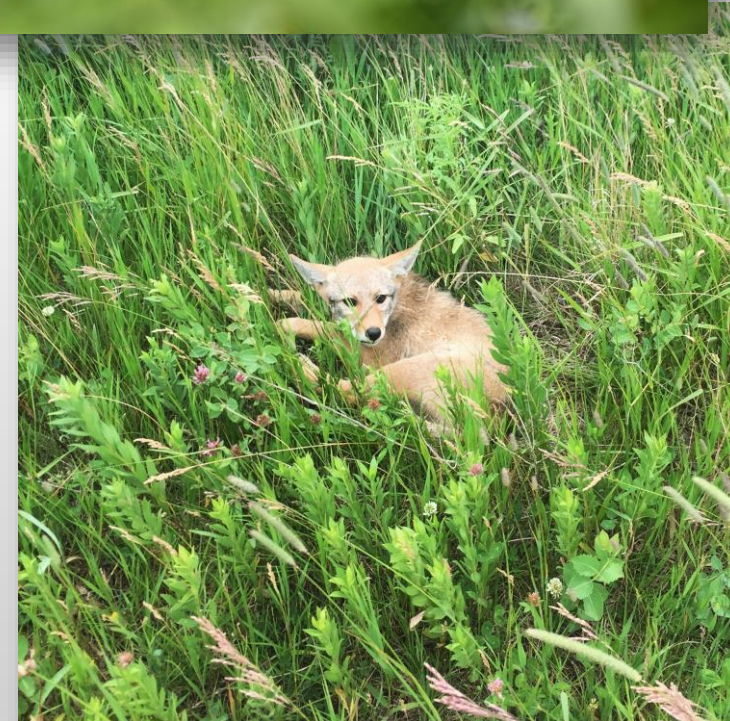
# Factors Influencing Productivity?

- Increasing populations of some nest predator species
- Loss of nesting and brood-rearing habitats
  - CRP → row crop & forest maturation
- Decline in insect abundance? Impacts for poult food availability?
- Changing weather patterns? (Greater frequency of intense rains)



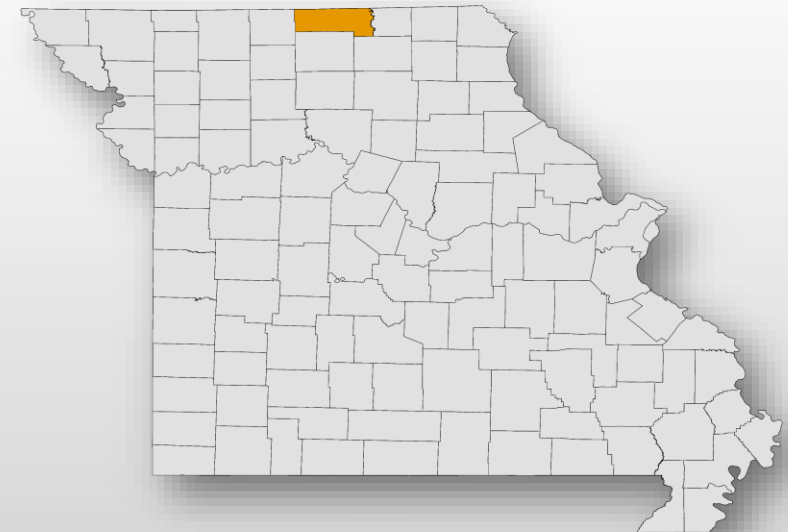
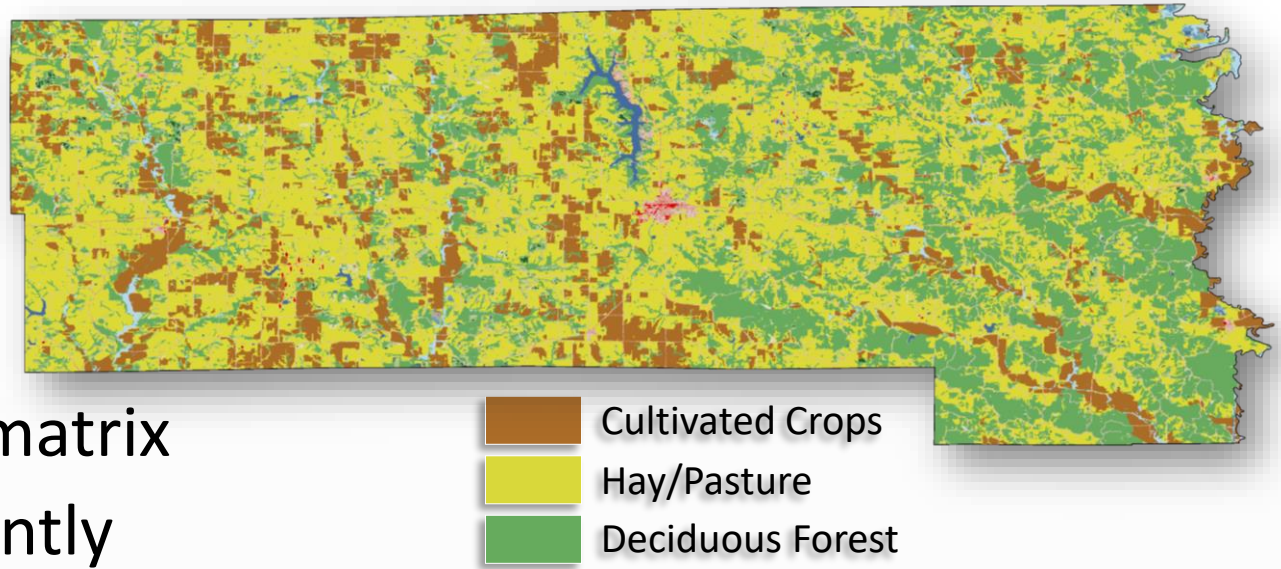
# Project Objectives

- Determine how
  - weather,
  - landscape characteristics (macro & micro-habitat),
  - predator densities/spatial distribution,
  - invertebrate abundance,and their interactions affect wild turkey nest success & poult survival.
- Identify the main causes of poult mortality
- Assess brood-rearing habitat selection
  - Important characteristics of quality brood-rearing habitat?
  - Where are turkeys & predators most likely to interact?



# Study Area

- Putnam County
- Agriculture and woodland matrix
- Overlaps study area of recently concluded north Missouri turkey project
  - Inferences could be drawn by combining data from both projects
  - Long-term nest success & poult survival dataset
- Field-work will span a 4-year period
  - Capture annual variability in weather, predator densities, and invertebrate abundance



# Outline of Project Work

- Captive poult trials – Summer/Fall 2020
  - Determine best method of VHF transmitter attachment
- Captive hen trials – Fall/Winter 2020
  - Develop machine learning algorithm to translate ACC data into known behaviors
  - Identify threshold for movement where GPS will gather more frequent locations





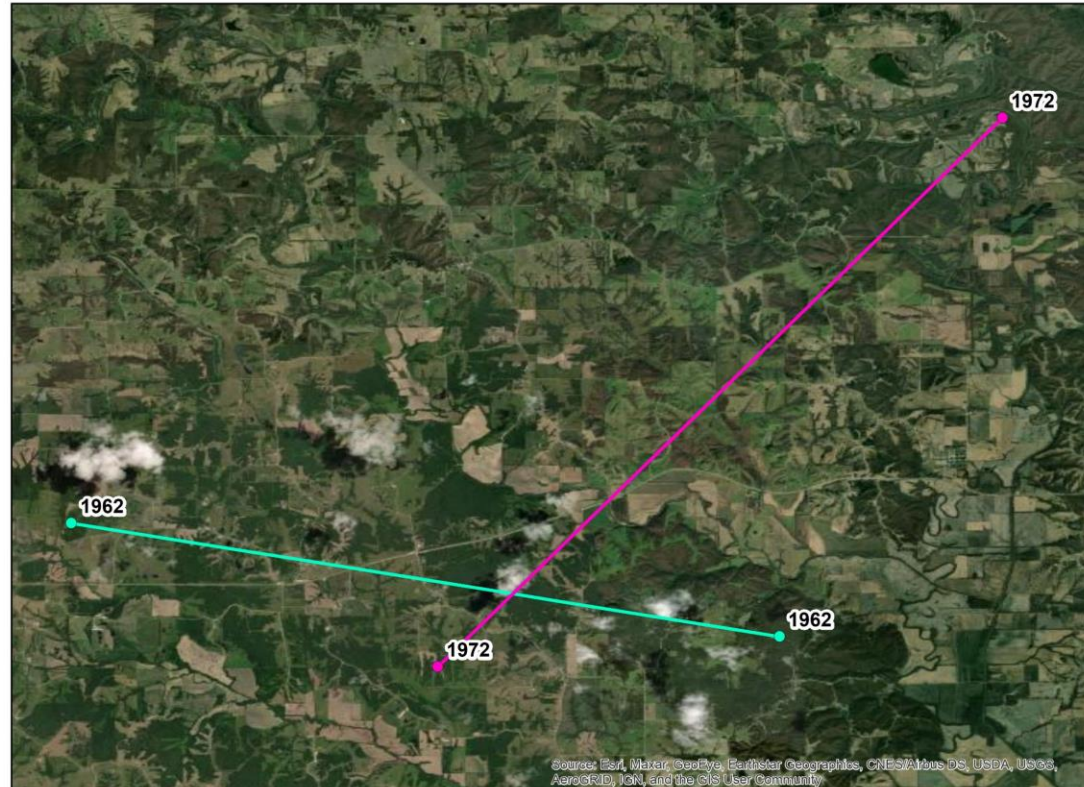
# Outline of Project Work

- Capture 50 wild turkey hens – January through March (4 years)
- Spring/Summer field work – April through August (4 years)
  - Monitor hens for survival & nesting
  - Capture & tag nest predators
  - Radio-mark & monitor poults for survival & cause-specific mortality
  - Set camera trap arrays to monitor poult predators
  - Vegetation and invertebrate sampling
    - Measure vegetation at nest sites
    - Static veg & invert sampling points across study area
    - Sample veg & inverts at points used by turkeys with broods
  - Set & monitor weather stations across study area (precipitation & temperature)





# Juvenile Hen Recaptures



0 1 2 3 4 Miles



# Adult Hen Recaptures



0 0.25 0.5 0.75 1 Miles





# Questions?

Reina.Tyl@mdc.mo.gov  
Wild Turkey and Ruffed Grouse Biologist  
Missouri Department of Conservation

