White-tailed Prairie Dog 2010 Monitoring Pinedale Anticline Project Area

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Survey Objectives

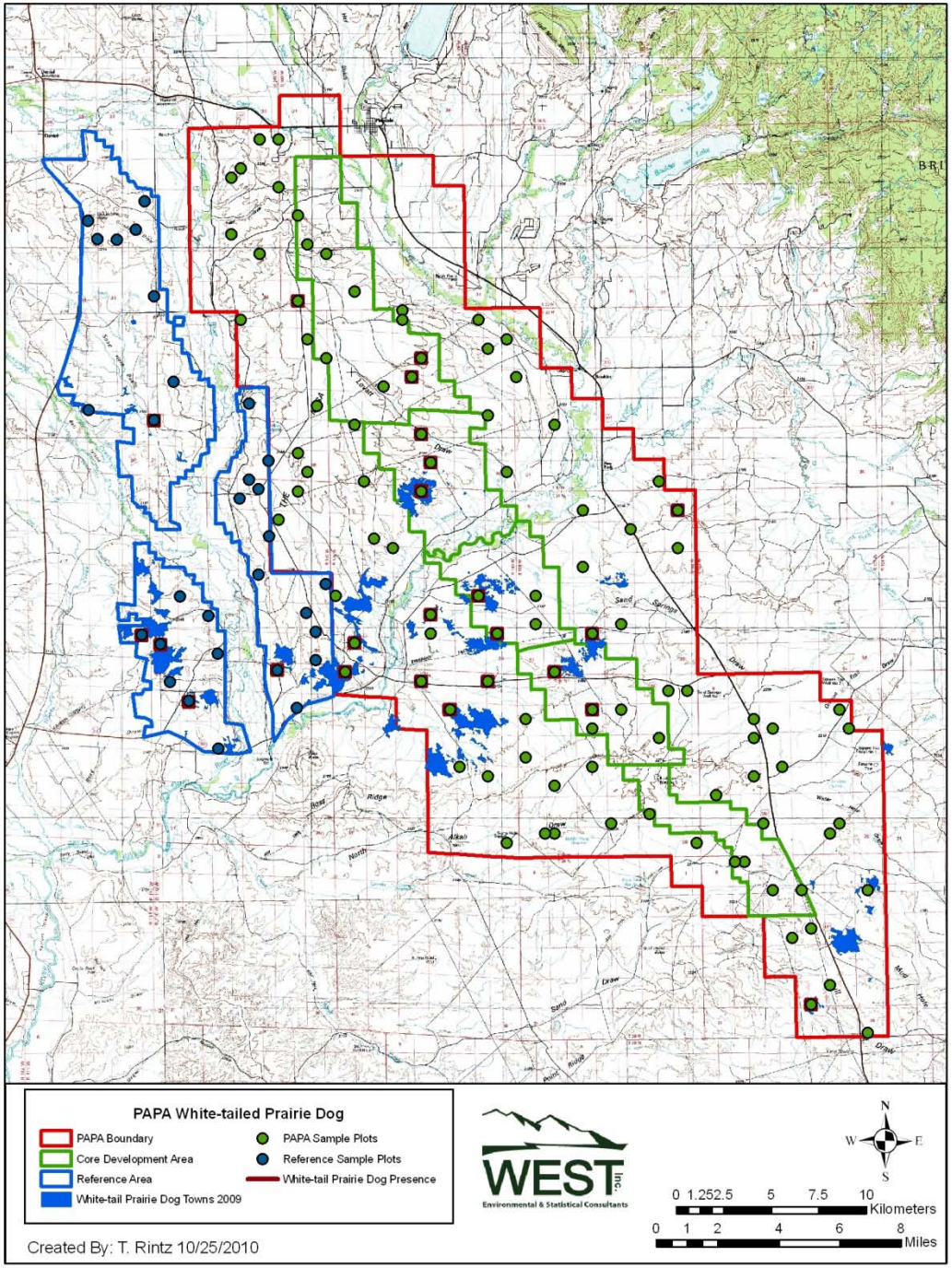
1. Monitor long-term trend in occupancy rates

2. Monitor long-term trend in active burrow density/prairie-dog numbers

2010 Survey

- Generalized Random Tessellation Stratified (GRTS) sample of plots
- 500m x 500m plots
- 99 plots surveyed in PAPA Core area
- 30 plots surveyed in Reference area

Sampled Plots and Occupied Plots



Survey Methods- Occupancy

- Two visits to each plot by two different surveyors
- Four corners visited for 5 minutes each
  - Recorded number of groups and number of prairie dogs
- Sides walked between corners
  - Were prairie dogs observed within plot or not observed within plot
- Data recorded during each visit:
  - Presence/Absence of WTPD in sample plot
  - Number of WTPD groups/individuals
  - Length of survey
  - Julian Date
  - Temperature
  - Precipitation
  - Wind

Survey Methods-Burrow Density

- At each plot with WTPD occupancy
- Eight strip transects (3m x 500m) spaced 60m apart within plot
- Data Recorded during each visit:
  - Total Number of Burrows (>7cm diameter entrance with end not visible)
  - Number of Active Burrows (fresh scat within 0.5m of entrance)

Analysis Methods- Occupancy

- Occupancy Rates estimated with methods of MacKenzie et al. 2006
- Variance estimated by bootstrap simulation
- This will be the statistic monitored over time, vs. previous plan to monitor area of prairie dog towns.

Occupancy Rates

- PAPA: 0.25 (95% CI: 0.16, 0.37)
- Reference: 0.20 (95% CI: 0.07,0.36)

Analysis Methods- Burrow Density

- Density estimated by:

  number of burrows/0.012 km^2 survey area

- Total Burrow Density (#/km^2)
  - PAPA: 276 (95% CI: 131, 421)
  - Reference: 228 (95% CI: 0, 470)
- Active Burrow Density (#/km^2)
  - PAPA: 103 (95% CI: 32, 173)
  - Reference: 72 (95% CI: 0, 165)

Further Analyses

- Finalize Occupancy Rates
- Incorporation of Site Occupancy Covariates
  (e.g., infrastructure parameters)
- Incorporation of Detection Covariates
  (e.g., temperature, wind, precipitation, Julian date)
- Power analysis to evaluate sample size