

U.S. Department of the Interior  
Bureau of Land Management

# Wild Horse and Burro Aerial Survey Update

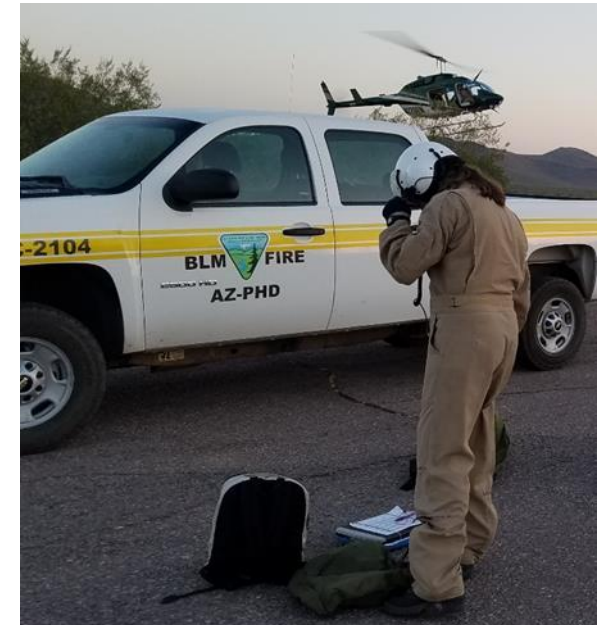




# Background: Aerial Surveys

## Simultaneous Double-Observer Method

- 2013 NAS report stressed the need to account for animals not seen on aerial surveys
- In 2014 BLM began using a Simultaneous Double-Observer Method that accounts for these animals
- By the end of 2016, most HMAs had been surveyed with this method once or more
- March 2020 USGS published SOP on the method
- SOPs codify survey method, so they are consistently applied

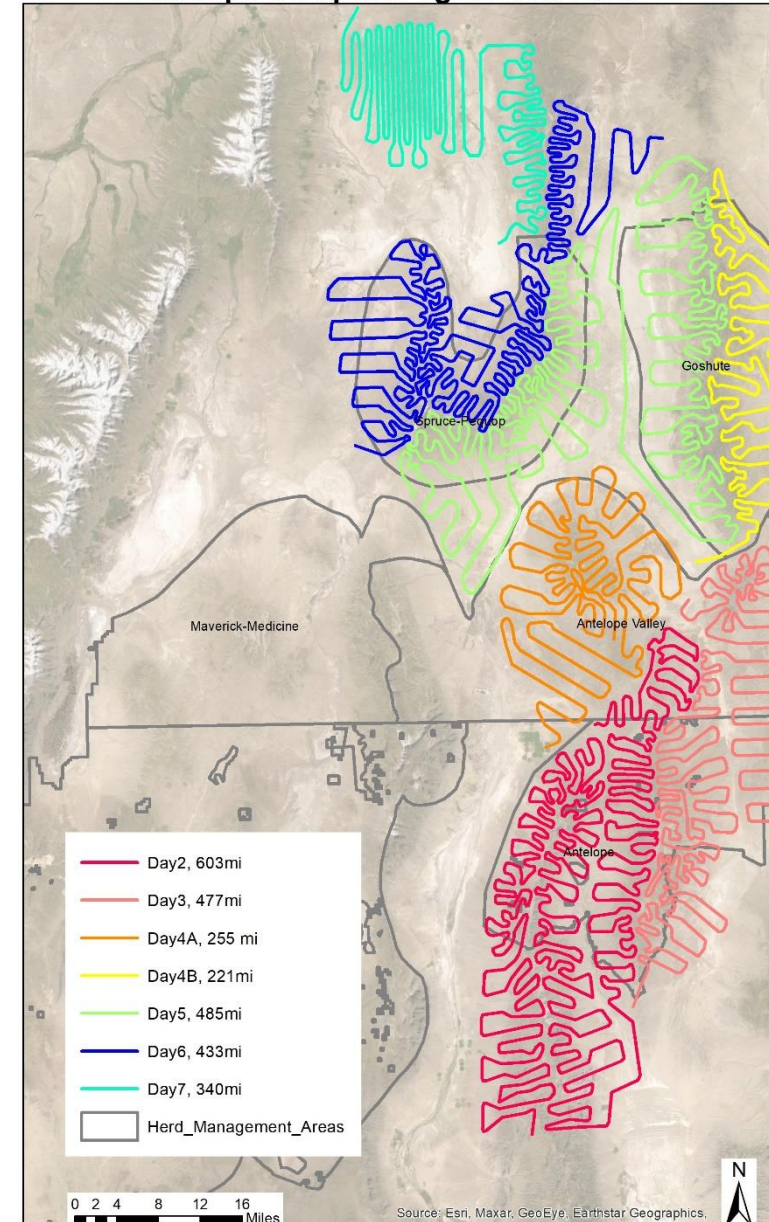




# Background: Methodological Survey Support

- History of expert guidance/technical assistance on surveys
  - 2013- 2015 USGS
  - 2015- 2016 Internal BLM
  - 2016- 2019 USGS
  - 2019- current Internal BLM
- BLM has now hired a Population Biologist- Michelle Crabb, who started in January.
  - Background in aerial surveys and abundance estimation techniques
  - Worked for AZ Game and Fish Research Branch for previous 15 years

Antelope Complex Flight Lines 2021





# Background: Aerial Survey Flights

- Three observers in a helicopter (or fixed-wing aircraft), plus the pilot
- Fly 150 to 400 feet AGL (just over 500' for fixed-wing)
- 50 to 70 knots (95-120 for fixed-wing)
- Distances between flight lines vary based on conditions

## Data Sheet



WH&B Survey Datasheet For Horse Surveys (Start a new Flight # and datasheet each time you take off)  
 Date: \_\_\_\_\_ Flight # \_\_\_\_\_ For this flight leg, write observers' positions in aircraft, use initials →

Data recorder name: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

| Waypoint # | Time<br>hh:mm | Species                 | Total<br>Count | Detected<br>by<br>(circle<br>who saw) |      | Side of<br>Ship | Activity | Visual<br>Field | % Concealing<br>Vegetation | Distance<br>aprox. miles | Light<br>Level | Topo Class<br>(big rocks) | % of Ground<br>snow-covered | Frontal OK? | Comments (optional)<br>i.e., color notes, outside HMA,<br>species if not horse / burro,<br>any problems, radio collar #, etc. |
|------------|---------------|-------------------------|----------------|---------------------------------------|------|-----------------|----------|-----------------|----------------------------|--------------------------|----------------|---------------------------|-----------------------------|-------------|---|
|            |               |                         |                | Adult                                 | Foal |                 |          |                 |                            |                          |                |                           |                             |             |   |
| :          |               | Horse<br>Other<br>Burro |                | LF                                    | RF   | L R Both        | Move     | Open Tree       | <¼                         | ¼-½                      | Hi             | Flat                      | Smooth                      | OK          | Bay ___ Back ___ Palo ___ Gray ___ Black ___<br>Sorel ___ Roan ___ Pinto ___ Other ___  |
|            |               |                         |                | LB                                    | RB   | Center only     | Still    | Broken          |                            |                          |                |                           |                             |             |   |
| :          |               | Horse<br>Other<br>Burro |                | LF                                    | RF   | L R Both        | Move     | Open Tree       | <¼                         | ¼-½                      | Hi             | Flat                      | Smooth                      | OK          | Bay ___ Back ___ Palo ___ Gray ___ Black ___<br>Sorel ___ Roan ___ Pinto ___ Other ___  |
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|            |               |                         |                | LB                                    | RB   | Center only     | Still    | Broken          |                            |                          |                |                           |                             |             |   |

Entered by \_\_\_\_\_ Date \_\_\_\_\_ Verified by \_\_\_\_\_ Date \_\_\_\_\_ Updated by \_\_\_\_\_ Date \_\_\_\_\_  
 HorseAerialSurveyDatasheet\_233May2012.docx



# WHB Aerial Survey Update

- Surveys Completed:
  - 43 HMAs surveyed in FY2020 (2 of these were infrared)  
Plus 10 HAs
  - 55 HMAs surveyed so far in FY2021 (as of June 1st)  
Plus 17 HAs, and 7 WHTs  
of these 5 HMAs and 2 HAs were infrared
- Surveys currently planned for remainder of FY2021
  - 15 HMAs, plus 3 HAs (1 of these will be infrared)





# Simultaneous Double-Observer Analysis

- Survey analysis is transitioning from a contractor in 20-21 to being internal BLM
- Analysis method we use
  - Conducted in the statistical software called program “R”
  - R script allows for repeatable analysis
  - USGS validated
  - Available online
- Accounting for Unseen Animals-  
Key ideas:
  - Observe horse groups
  - Estimate each ‘seen’ horse group’s probability of detection, if the survey were repeated
  - Correct for the estimated # of horse groups like the ones observed that did not get detected

## A Look to the Future

- Continue to explore newer survey methods
  - Infrared
  - Remote sensing
  - Machine learning

