

SUPPLEMENTAL DATA (SD7): POST-HOC ANALYSES OF ARROYOS WITHIN THE STUDY AREA

We conducted a post-hoc analysis to determine what proportion of the study area was arroyos (i.e., gullies). We used ArcMap 10.7.1 to create a polygon by tracing the arroyos within the study area (Figure SD7.1). We calculated the area of the arroyo polygon to be 261,067 m² and the area of the study area to be 1,159,329 m². Thus, arroyos made up 22.52% of the study area.

We conducted a post-hoc analysis to determine if there were temperature differences between sites located within arroyos and sites located outside of arroyos. We deployed iButtons, which record ambient temperature and relative humidity every 0.5 hours, at 19 chipmunk monitoring sites in the study area from 1 March 2019 – 29 February 2020. We categorized iButton locations as “arroyo” or “non-arroyo” based on the map of arroyos (Figure SD7.1). We calculated the mean temperature for every 0.5-hour interval for “arroyo” sites ($n = 10$) and “non-arroyo” sites ($n = 9$). To determine how temperature in arroyos and non-arroyos varied across seasons, we conducted t-tests for winter (Dec. – Feb.), spring (Mar. – May), summer (Jun. – Aug.), and fall (Sept. – Nov.; Table SD7.1). In winter, arroyos were not significantly different in temperature than non-arroyos ($t_{6490} = -0.87$, $p = 0.38$; Table SD7.1). Arroyos were significantly cooler than non-arroyos in spring ($t_{8746} = -4.59$, $p < 0.0001$), summer ($t_{8876} = -3.21$, $p < 0.01$), and fall ($t_{6032} = -3.17$, $p < 0.01$; Table SD7.1).

Table SD7.1. Mean temperature of arroyos and non-arroyos based on iButton data collected 1 Mar 2019 – 29 Feb 2020 in the Organ Mountains, New Mexico.

| Season | Mean arroyo temperature (°C) | Mean non-arroyo temperature (°C) |
|--------|------------------------------|----------------------------------|
| Winter | 5.01 | 5.09 |
| Spring | 12.66 | 13.21 |
| Summer | 23.20 | 23.49 |
| Fall | 15.25 | 15.78 |

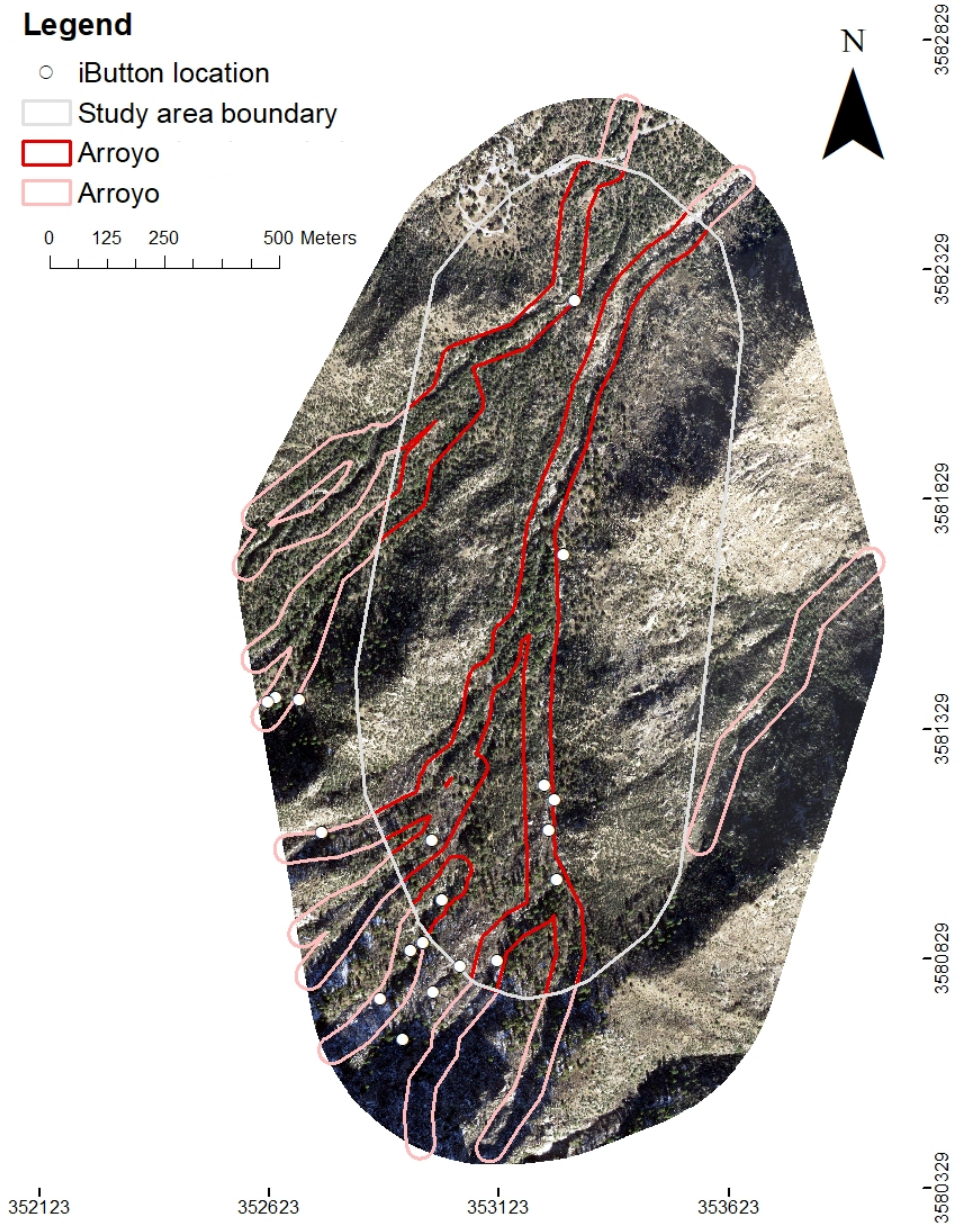


Figure SD7.1.—Map of arroyos and iButton locations within the study area (white line) in the Organ Mountains, New Mexico. Only arroyos shown in red were included in the landscape coverage analysis.