Description of data associated with Rogers et al. 2020, "Thermal constraints on energy balance, behavior, and spatial distribution of grizzly bears"

The following meta-data pertain to Niche Mapper Parameterization Data.pdf:

- This file includes a table, also included in the Supplementary Material associated with the published manuscript, describing the parameter values and sources of data used to parameterize Niche Mapper (a biophysical simulation model) for female grizzly bears in our study.

Description of remotely sensed data layers included in the genetic programming model of grizzly bear distribution, and online locations where the layers can be downloaded online. Appropriately clipped versions of each layer are included in the file 'Remotely Sensed Data Layers.zip' unless otherwise noted.

Raster datasets area at 30-m resolution and clipped to an area of interest (AOI) rectangle that includes Yellowstone National Park and all of the Grizzly Bear Recovery Zone.

1. **Census_HomeDensity** – surrogate for human occupancy representing density of housing units per census block (units = number of house units per km^2). Based on 2010 U.S. Census Bureau housing [(1)] data. Source url: https://www.census.gov/data.html. (*Note*: *a housing unit is defined by the U.S. Census Bureau as a house, apartment, mobile home, group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall*.)
2. **NLCD2011** – 2011 National Land Cover Data for Conterminous United States. Basis for deriving tree canopy cover and associated error estimates, as well as forest land cover and associated distance metric (see below). Source url: https://catalog.data.gov/dataset/nlcd-2011-database.
3. **Dist2ForestEdge_m** – Distance to forest edge measured in meters, calculated from NLCD 2011 (see link in 2 above). Negative/positive values are distances measured from inside/outside a forest stand respectively. Values of 0 delineate edges of forest cover.

4. **Dist2Road_Hwy_m** – Distance to nearest road (Interstates, US Highways, county and state routes, and local, rural and city roads) measured in meters and based on USGS National Map Transportation TIGER/Line data. Source url: http://viewer.nationalmap.gov/basic.

5. **Dist2Stream_Rivers_m** – distance to nearest perennial stream or river measured in meters and based on high-resolution (1:24,000) National Hydrologic Dataset. Source url: https://viewer.nationalmap.gov/basic/#/.

6. **Elevation_meters** – 30-meter National Elevation Data (NED30, one arc-second) downloaded in 1-degree tiles obtained at the USDA Natural Resources Conservation Service (NRCS) Geospatial Data Gateway. Source url: https://gdg.sc.egov.usda.gov.

7. **NDVI** – Normalized Difference Vegetation Index. A surrogate measure of vegetative greenness, and hence a vegetation index of the landscape. NDVI was generated from a VB script (credit, Ian Houseman, USDA Remote Sensing Applications Center) executed on Google Earth Engine (GEE). The NDVI raster is a median composite of multiple Landsat 8 image scenes acquired between 2013 and 2015 during the peak greenness season of June 15-July 15. GEE processing corrected for geometric, radiometric, and atmospheric errors, including cloud coverage. Individual pixels corresponding to clouds were excluded from the analysis. Raster cell values represent top-of-atmosphere reflectances. Source url: https://earthengine.google.com/datasets/

8. **Solar_Radiation** – solar radiation generated in ArcGIS based on equation in Muhammad Iqbal 1983 An Introduction to Solar Radiation, p. 72. Raster source data was 2001 National Elevation Dataset.

9. **Cloud Cover (MODCF_monthlymean)** – Mean monthly percent cloud cover during May–September, averaged across years from 2000–2014. Source url: https://www.earthenv.org/cloud.

10. **Temperature** – Mean monthly average temperature minima and maxima based on 30-year norms from 1981–2010. Temperature layers were too large to post online, but are publicly available from: https://prism.oregonstate.edu/normals/.