JRN-LTER VII: Annual Report (Year 4)

Award Number: 2025166
Project Title: LTER: Long –Term Research at the Jornada Basin (LTER VII)

Project/Grant Period: 12/01/2020 - 11/30/2025

Reporting Period: 12/01/2023 - 11/30/2024

ACCOMPLISHMENTS

What are the major goals of the project?

We will explore how landscape-level spatial heterogeneity evolves in response to the effects of disturbance triggers, connectivity-mediated feedbacks, and their interactions with the soil-geomorphic template. We will integrate long-term observations and recent theoretical developments to improve a conceptual and predictive framework for drylands. We propose to expand our landscape linkages framework to fill this critical need, and to contribute to emerging ecological theory on: (a) alternative states and transient dynamics, (b) ecosystem sensitivity under global change, and (c) cross-scale interactions.

Obj. 1. quantify effects of interactions among triggers, connectivity-mediated feedbacks, and soil-geomorphic heterogeneity on the rate and nature of state transitions.

Obj. 2. explain and predict multi-scale spatial heterogeneity in alternative states.

Obj. 3. apply new analytical concepts and tools to broader extents (regional to global) and examine consequences for ecosystem services.

What was accomplished under these goals and objectives?

Major Activities

Obj. 1: quantify effects of interactions among triggers, connectivity mediated feedbacks and soil-geomorphic heterogeneity on rate and nature of state transitions.

A. Grassland to shrubland transitions

A1: ThreshEx: The ThreshEx2 experiment, testing the interactions of defoliation, drought intensity, press duration, and initial environmental conditions on *B. eriopoda* foliar cover and ANPP, was fully established and 2 years of data have been collected to this point.

A2: NEAT2: The NEAT2 experiment will examine how biocrust impacts aeolian transport. Initial biocrust inoculation was implemented during a prolonged drought in Summer 2022, and ongoing measurements to evaluate impacts of reduced wind and biocrust on aeolian transport and grass establishment and survival.

A3: The Ecotone Study: Long-term sampling of rodents, lagomorphs, and mammalian predators continues to examine trophic cascades during grass-shrub state transitions. We expanded to include herbivory feedbacks on established grasses and seedlings from native, exotic, and domesticated mammals.

B. Shrubland to grassland transitions

B1: The Threshold Responses in Grass Growth, Establishment and Recovery Experiment: The TRIGGER experiment varies rainfall and connectivity, with PPT levels representing 100-yr and 10-yr wet/dry sequences (+/-80%, +/-50%) and ambient conditions and connectivity modifiers (conmods) reducing aeolian connectivity and sediment transport. Replicate plots include three levels (low, medium, high) of initial grass cover, with/without presence of rainout shelters and connmods. We monitor ANPP, cover, plant and litter density, and recruitment by species.

B2: The Grass Recovery on Wind Eroded Soils Experiment: GROWES is examining alternative succession pathways in the presence or absence of shrubs following major disturbance. Measurements of vegetation structure, soil moisture and dust transport continue.

B3: Cross-Scale Interaction Study: The >10 year CSIS study examines how grass recovery is impacted by wind and competition with shrubs, with treatments manipulating aeolian connectivity using 'conmods' and competition using herbicide.

B4: Long-Term NPP and Grass Recovery Trends: We continue monitoring NPP at 15 locations across JRN.

C. Shrubland to shrubland transitions

C1: Long-Term Shrub Monitoring: Shrub monitoring plots (in grassland, mesquite dunes, creosotebush and tarbush communities) will be augmented in JRN-8, with UAV and field-based inventory of shrubs for establishment, growth and mortality. These shrub demographic data complement shrub demographic experiments and link JRN shrub processes to long-term forest plots across the LTER network and globally.

C2: Shrub Demographic Experiment: Two studies (Wojciekeiwicz et al., 2024; Roberts and Hanan, 2024) explore how competition among the dominant shrubs of the Jornada impact maximum density and cover of shrubs and rates of shrub encroachment, providing new insight into how different measurements of plant size (indexed as canopy area or shrub volume) reflect resource demands and thus maximum shrub cover or shrub volumes across landforms and dominant species.

Plant-Soil Feedbacks: We continue studies of rhizosphere microbiomes for abundant Jornada shrub species (tarbush, mesquite, creosote, mariola) and grass species (black grama, lovegrass).

C3: Bajada Watershed Studies: The water balance instrumentation (precipitation gauges, cosmic-ray neutron sensing of soil water content, eddy covariance measurement of evapotranspiration, and outlet runoff from a flume) were used to derive a new formulation for percolation losses as a function of soil moisture during large storm events.

Carbon and Water Flux Studies: JRN and partners now operate 10 flux towers, providing an unprecedented opportunity to monitor carbon, water, and energy exchange at Basin scale. In August 2024, we hosted a 2-day regional AmeriFlux workshop and QA/QC site visit, with 20 data collectors and users across the US/MX Chihuahuan and Sonoran Desert ecoregions to build community, share best practices, and challenges (https://ameriflux.lbl.gov/2024-regional-workshop-las-cruces-nm/). A comparison of two eddy covariance towers (US-Jo2 and P-SMAL) was carried out in the context of a water balance study.

D. Transition to novel ecosystems

D1: How do Rainfall Variability, Grazing, and Competition with Native Grasses Interact to Trigger Non-Native Grass Invasion?

Plant-Soil Feedbacks and Lovegrass Invasion: We conducted a plant soil feedbacks and competition study with native black grama grass and invasive Lehmann lovegrass, incorporating water additions and fertilizer as experimental treatments.

E. Transitions under climate change

E1: Rainfall Manipulation Experiment: Our long-term experiments (> 17 y) in mixed black grama-mesquite manipulate (1) PPT amount (+/-80% & ambient), and (2) PPT inter-annual variability, including above ground production, root in-growth, and minirhizotrons. This year we added a new experiment to test the interactive effects of rainout/rainon shelters with misters to modify atmospheric vapor pressure deficit.

Obj. 2: explain and predict multi-scale spatial heterogeneity in alternative states

Jornada Long-Term Quadrats: New measurements at 127 quadrats, some of which were established more than 100 years ago, were completed in 2021. Next measurements are scheduled in 2026.

Ecohydrological Modeling: We conducted a water balance comparison for a runoff-producing upland site, and a runoff-receiving playa, using the available sensor networks. We characterized the inundation dynamics of 18 instrumented playas at JRN over a six-year period, linking playa dynamics to the ecohydrological properties of the upstream watersheds, including area, soil types, shrub cover and slope.

Biocrust distributions: We continue exploring biocrust abundance and diversity shaped by ecological conditions across 63 plots located on sandy, loamy, and clayey soils. Data on plant community composition, structure and soil aggregate stability were related to biocrust cover and composition. We are using metabarcode sequencing to survey the associated soil microbiomes (fungi, bacteria). A lab phenology experiment links biocrust carbon exchange to microbial activity.

Obj. 3 apply new analytical concepts and tools to broader extents (regional to global) and examine consequences for ecosystem services

Expanding Arid Land Ecological Theory: We validated our microbial extension to the Pulse Reserve Paradigm of arid lands (Kut and Garcia-Pichel, 2024).

Restore New Mexico: Publications are in preparation on vegetation responses to shrub removal efforts and how vertebrates respond to landscape mosaics created by shrub removal at regional scales.

Vegetation dynamics and state-change in the southwestern USA: Long-term changes in vegetation structure can be inferred using satellite data (2001-2022), enabling assessment of changes in woody vegetation separate from changes in herbaceous vegetation cover (Anchang et al., in prep).

Competition for resources in global woody plant communities: A global scale analysis of water uptake by woody plants in competition with neighbors provides a direct estimate of density-dependent competition as a critical process controlling maximum woody plant density in water limited ecosystems (Roberts and Hanan, in review).

Specific Objectives

See major goals (above)

Significant Results

Obj. 1: quantify effects of interactions among triggers, connectivity-mediated feedbacks, and soil-geomorphic heterogeneity on the rate and nature of state transitions.

A. Grassland to shrubland transitions

A1: ThreshEx2: 2024 had remarkably dry conditions. Rainfall scarcity has reduced *B. eriopoda* in all plots, including the controls, but we can now detect effects from both the rainfall and the clipping treatments. The drought will likely drive further state transitions favoring woody plants if it continues.

A2: The NEAT Experiment: Results from wind and biocrust manipulations are being collected.

A3: The Ecotone Study: Trophic interactions among canid predators and their lagomorph prey are driven by bottom-up pulses mediated by ecological state. Herbivory pressure is highest on shrub-dominated states during wet periods. A long-term (21 years) herbivore exclosure experiment revealed perennial grass cover and recovery from disturbance increased with removal of native small mammals, especially in shrub-dominated states. Likewise, seedling mortality from small mammal herbivores also increased with shrub encroachment (Figure 1).

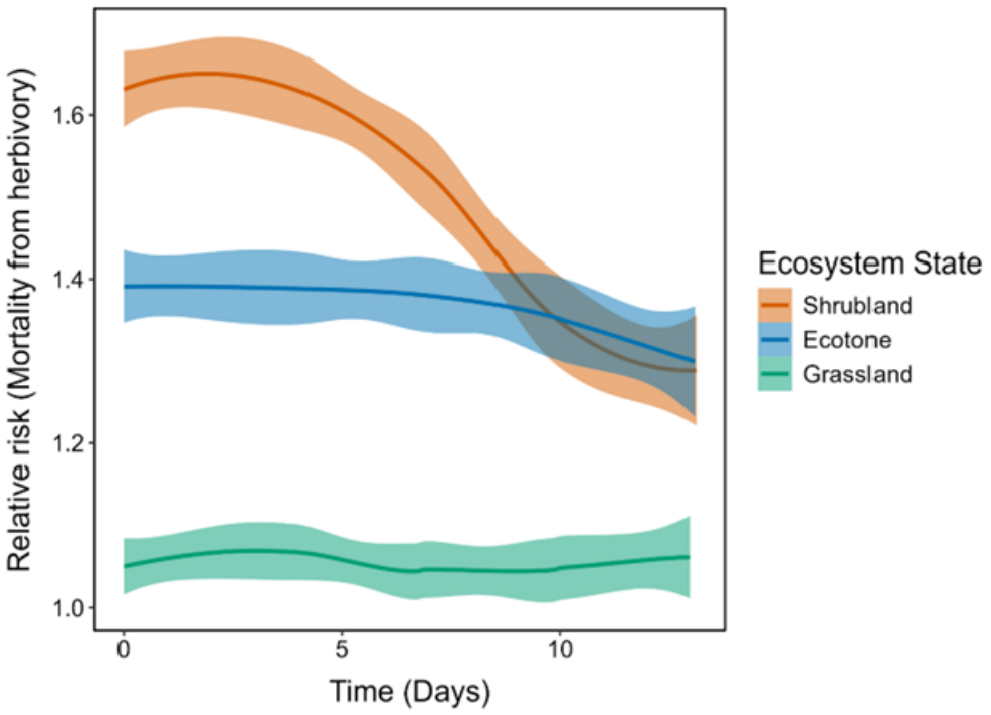

Figure 1. Risk of mortality from small mammal herbivory for perennial grass seedlings across ecosystem states on the Ecotone Study. Model predictions are from a mixed effects Cox proportional hazard model. Lines indicate the predicted relative risk, and shaded regions indicate the 95% confidence intervals.

B. Shrubland to grassland transitions

B1: The Threshold Responses in Grass Growth, Establishment and Recovery Experiment (TRIGGER): Four years of field data collection have been completed, with results indicating significant impacts of initial cover, precipitation treatment, and connectivity on live perennial grass cover and litter accumulation. UAV-based orthophotos are being analyzed to understand detailed patterns of vegetation and litter accumulation in the treatments.

B2: The Grass Recovery on Wind Eroded Soils Experiment: Observations continue at the GROWES site.

B3: Cross-Scale Interaction Study (CSIS): Results indicate that connectivity and competition treatments have modest impacts on grass recovery when applied alone, but much larger (non-additive) synergistic effects when both connectivity and competition are reduced, providing the first compelling evidence for a pathway to grass recovery in southwestern drylands (Peters et al., in review; Figure 2). Five datasets from the project have been published in the EDI data repository.

Figure 2. Photos showing cross-scale interactions study (CSIS) treatment effects on cover of perennial grass and other herbaceous plants growing between mesquite shrubs: (a) control plots with little or no vegetation, (b) plant-scale treatment plots (mesquite competition reduced using herbicide) with in-place mortality of woody plants and limited forb establishment, (c) patch-scale treatment (wind and sediment transport reduced using ConMods) show limited grass and forb establishment near ConMods, (d) combined effects of mesquite control and ConMods with much more significant grass establishment.

B4: Long-Term NPP and Grass Recovery Trends: Peters et al. (2023) showed how temporal lags interact with landscape context and soil types to control woody and herbaceous production.

C. Shrubland to shrubland transitions

C1: Long-Term Shrub Monitoring: Baseline data have been collected at four sites, with plans to expand to additional sites during JRN-8.

C2: Shrub Demographic Experiment (ShrubDemo): Wojcikiewicz et al (2024) used a simulation modeling approach to infer root competition intensity across the Jornada Basin, establishing that shrub population growth rates tend to zero (or negative) when local population density increases canopy cover above ~25%. Roberts et al (2024) showed how competitive interactions, and limits to the shrub encroachment process, depend more closely on 3-dimensional shrub community structure (i.e., shrub volume), than on the 2-dimensional metric of shrub cover (Figure 3).

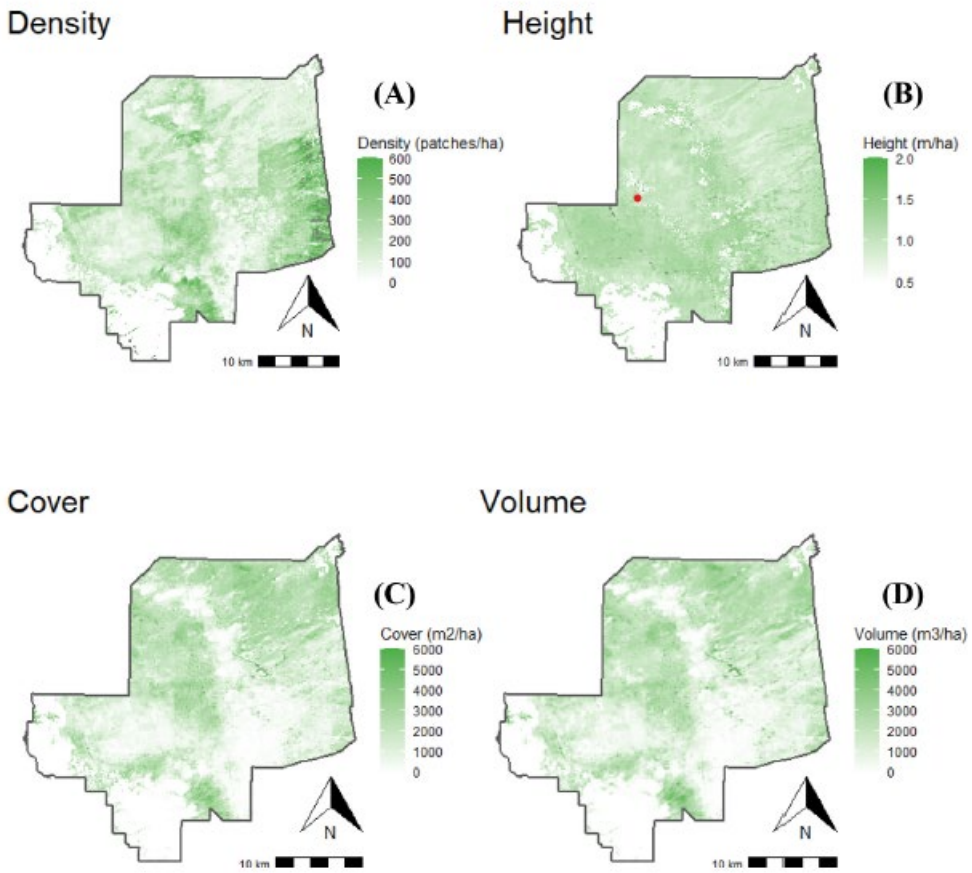

Figure 3. Shrub population metrics for the Jornada Basin. Shrub density (A), shrub height (B), shrub cover (C), and shrub volume (D) estimates, all at 1 ha spatial resolution. Maps were created by fusing lidar height estimates with canopy cover estimates obtained from multispectral airborne data. Areas of poor lidar performance due to topographic roughness are masked. The borders of the JRN-LTER extend further east than shown but were not included due to the mountainous terrain.

C3: Bajada Watershed and Playa Studies: We used rain gauge-corrected precipitation from weather radar and water level measurements in 18 playas to identify precipitation thresholds leading to inundation (Figure 4, Kimsal et al. 2024, in review). Geospatial data on terrain, soil, and vegetation were used to determine the controls on inundation. Only 5.3% of all precipitation events led to inundation, with 69.8% of all inundations occurring during the monsoon. At the annual scale, playa inundation occurred when mean precipitation thresholds of 18.3 ± 7.5 mm (event total) and 12.0 ± 4.5 mm/hr (60-min intensity) were exceeded. Across all playas, inundation occurrence and volume were related most strongly to precipitation metrics and catchment area, with secondary controls of soil and vegetation properties. The explanatory power of regressions describing the inundation response across the playas were significantly improved when considering their geological origin.

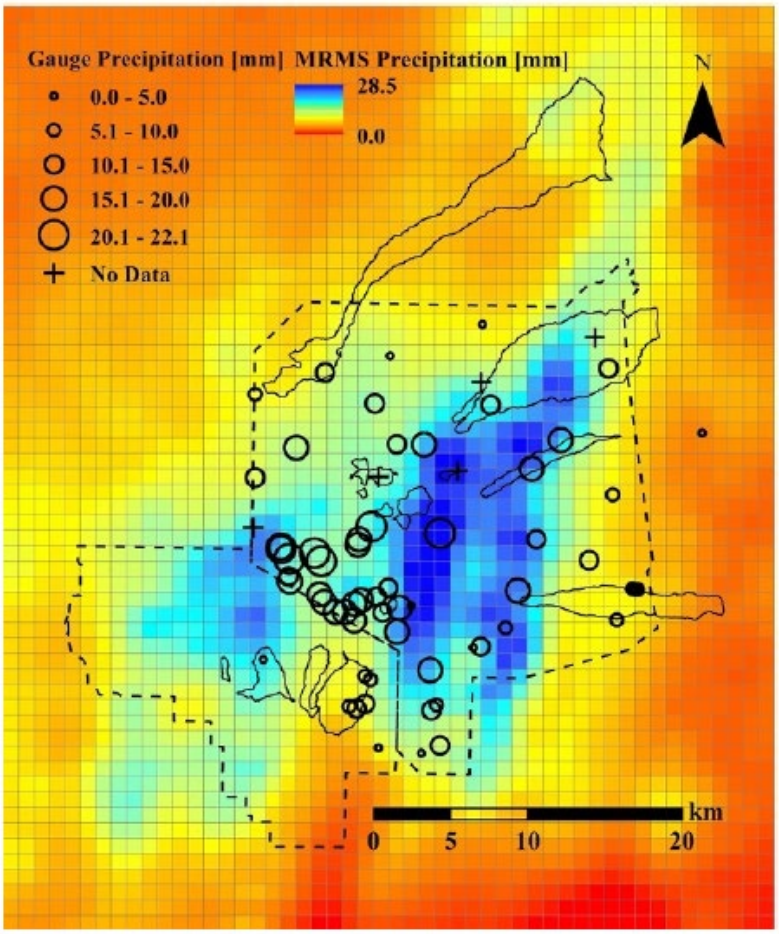

Figure 4. Rainfall estimates across a network of gauges in the JER and CDRRC relative to bias-corrected weather radar data (MRMS; a 1-km grid product). Figure also shows the upstream catchments of 18 instrumented playas. Rain gauge sites with No Data labeled with +. The example is a comparison of hourly precipitation on October 4, 2019.

D. Transition to novel ecosystems

D1: How do Rainfall Variability, Grazing, and Competition with Native Grasses Interact to Trigger Non-Native Grass Invasion?

Lehmann Lovegrass soil inoculum had a positive impact on black grama when fertilizer was added, but plant-soil feedbacks (PSF) were minimal otherwise. Lehmann lovegrass was generally the superior competitor under all conditions (Meyers et al., in revision).

E. Transitions under climate change

E1: Rainfall Manipulation Experiment: A new study quantified the impact of extreme short-term drought on grassland and shrubland ecosystems across six continents providing baseline understanding of the potential losses of plant productivity in these vital ecosystems.
The loss of aboveground plant growth – a key measure of ecosystem function – was 60% greater when short-term drought was extreme compared to the less severe droughts that have been more commonly experienced historically.

Key Outcomes or Other Achievements

Obj. 2: explain and predict multi-scale spatial heterogeneity in alternative states.

Microbial diversity, biocrust microbiome and state transitions: In the recently published paper by McCord et al. (2024) we showed how biocrust abundance and composition relate to state transition indicators such as plant canopy gap. In general, dark cyanobacteria, moss and lichen crusts are associated with smaller vascular plant gap sizes, conditions that are found in reference or slightly altered ecological states. This is particularly evident in sandy ecological sites at the JER.

Obj. 3: apply new analytical concepts and tools to broader extents (regional to global) and examine consequences for ecosystem services.

Shrub encroachment in the southwestern USA: The Restore New Mexico project attempts to remove encroaching shrubs throughout southwestern New Mexico within 7 x 7 km landscape mosaic blocks representing treatment gradients. We are testing the hypothesis that bird, lizard and small mammal species richness, and abundances are positively related to habitat heterogeneity and thus maximized at intermediate treatment levels. These results can inform landscape management—more shrub removal is not necessarily better for biodiversity and ecosystem services. Data are undergoing final analyses.

Competitive interactions limit shrub encroachment in global drylands: We analyzed data from the Sapfluxnet global sap-flow data analysis (Roberts et al., in review) providing empirical evidence that shrub competition reduces the ability of woody plants to access soil water

resources. The relationships are stronger for dryland regions, providing direct evidence that reduced growth and increased mortality in Jornada shrublands at higher densities is likely associated with below-ground competition for water.

What opportunities for training and professional development has the project provided?

K-12 Education and Outreach Accomplishments: JRN collaborates with the nonprofit Asombro Institute for Science Education to lead our K-12 education program, increase student ecological literacy, decrease stereotypes about scientists and science, and encourage participation in STEM careers. This is especially important in southern New Mexico, where the majority of our participants are from groups underrepresented in science: 75% of our K-12 participants are economically disadvantaged, and 77% are Hispanic.

During more than 2 decades of K-12 engagement our team has created a suite of programs, detailed below. This year, we also piloted an "Ecosystem Pen Pals" project with four other LTER sites. **Between December 2023 and October 2024, these programs collectively reached 20,235 K-12 students, 853 teachers, and 824 other adults.** Accomplishments for each component are listed below.

1. Classroom and Schoolyard Science Lessons: 17,846 K-12th grade students participated in 853 one-hour classroom and schoolyard activities delivered by Asombro educators. Grade-specific K-12 lessons cover a variety of topics related to JRN research. All lessons are hands-on, aligned with Next Generation Science Standards, and designed using our 15-step development process, which includes screening for diversity, equity, and inclusion criteria.

2. Field Trips: This year we provided 18 field trips for 1,262 students, including hikes, hands-on activities, data collection, and interpretation around a central theme: desert plant and animal habitats (kindergarten and 1st grade), wind and water erosion (2nd and 3rd grade), using science to protect natural resources (4th and 5th grade), and desertification and restoration (6th-8th grade).

3. Schoolyard Field Trips: We developed two-hour schoolyard field trips to give students the benefits of outdoor learning in their schoolyard, including 2nd/3rd and 4th/5th grade field trips, and delivered 7 of them for 577 students in 30 classes. In each schoolyard field trip, students investigate a central question through hands-on activity stations led by Asombro staff and classroom teachers, incorporating science, reading, writing, and math.

4. NEW: Ecosystem Pen Pals: We piloted a postcard exchange with 5th grade students living near five LTERs in New Mexico (JRN), Alaska (NGA), Colorado (NWT), Massachusetts (HFR), and Virginia (VCR). Each class read One Day in the Desert (2017), the JRN's contribution to the

LTER children's book series, in which the main character learns about her desert ecosystem and corresponds through postcards with kids from other LTER sites. In our Ecosystem Pen Pals project, 5th graders in five states replicated the main character's experience. Teachers and students loved the project. For example, one teacher wrote on an evaluation, "Everything worked out well. Love the pen pals and exposure to different ecosystems via the activity." We will continue the project in the 2024/25 school year, including students from LUQ.

5. Desert Data Jam: The 11-year-old Desert Data Jam engages students in interpreting and communicating real data trends in creative ways (e.g., games, videos, physical models). In spring 2024, Asombro educators worked with 428 middle school students through four classroom lessons. The top 61 projects were entered into the final competition and judged at least four times. The three top prize winners and ten honorable mention projects can be viewed on the Desert Data Jam website (https://asombro.org/desert-data-jam/).

6. Teacher Workshops: We hosted nine in-person and virtual workshops for 212 teachers. For example, one workshop in March was for educators and others who work with youth at the Santa Ana Pueblo in central New Mexico. Another workshop in October was for upper elementary teachers in southern New Mexico we focused on the role of desert playas.

7. Public Programs: We hosted or participated in other public programs throughout southern New Mexico and far west Texas, reaching 550 K-12 students and 690 adults through 19 public programs at nature parks, STEM nights, city parks, and public libraries. Seven Asombro events featured hands-on activity stations and expert talks to highlight research on animals and plants of the Chihuahuan Desert.

8. Undergraduate Internship in Science Education: Each semester, the Asombro Institute hosts an undergraduate intern from New Mexico State University. The paid internship exposes undergraduates to science education and outreach as they (a) accompany staff into local classrooms to assist with lessons, (b) assist with field trips, and (c) work on office projects to help prepare for upcoming lessons, workshops, and public events.

9. Graduate Student Integration in K-12 Education: Graduate students receiving JRN fellowships participate in 2-10 hours of Asombro K-12 education activities. They choose from a menu of options that can be done in-person or from afar (e.g., assisting with education programs, reviewing new science education lessons). Between December 2023 and October 2024, six graduate students contributed more than 40 hours to the K-12 program.

Education and Outreach in Higher Education and Other Contexts: In 2024, JRN continued outreach and education activities with undergraduate and graduate students, our own researchers and staff, and neighboring institutions and communities. These activities are focused on developing research and technical skills, building relationships with regional scientists, managers, and the public. Selected accomplishments are highlighted below.

1. Data Workshops: The JRN IM team organized a Data Carpentry in 2024, focused on using NEON geospatial data with the R programming language, including Desert Ecology Short Course attendees, REU students, graduate students, and an instructor from the MCM LTER. Lead IM Maurer also organized and instructed a new "Ecological Data Synthesis: A primer of essential methods" short course, and co-instructed a workshop on using NEON biodiversity data during the ESA 2024 Summer Meeting with contributors from other LTER sites, NEON, and the Environmental Data Initiative.

2. LTER-VII Graduate Fellow Report: The JRN-LTER Graduate Student Research Fellowships Program provided direct support for 5 graduate students in 2024. Student training, mentoring, and research opportunities extended to an additional >15 graduate students at NMSU and partner institutions (UTEP, ASU, UCLA, UI). We continued our graduate networking and professional development forum (the online "Desert Discourse" Series) to enhance opportunities for research and career advancement for graduate students, PIs, postdocs, and staff for networking, team building and professional development, and as a mechanism for retention and the promotion of a diverse next generation of ecological and STEM researchers.

3. LTER-VII REU Report: This year, student training and mentoring opportunities in dryland ecology included funding for 5 REU students. We continued REU enrichment programs including field trips, socials, data-management training, graduate-student mentoring, and workshops to enrich the student experience.

4. Jornada Desert Ecology Short-Course: We hosted our Short-Course in-person this year at our field site. We hosted over 50 participants for three days of workshops, presentations, and field trips, with JRN researchers and students and collaborators from neighboring institutions and LTER sites.

5. Jornada Basin LTER Safety Training: JRN's field safety protocols and training (https://lter.jornada.nmsu.edu/for-researchers), include our code of conduct, sections on physical safety (specific to the Chihuahuan desert and our facilities), harassment and Title-IX policies, mental well-being, other resources and reporting mechanisms. Field safety resources are available on our website, and are associated with increased training, and stricter requirements for dispersing safety resources to our researchers.

Have the results been disseminated to communities of interest?

JRN-LTER results have been communicated through scientific meetings, and publications in high impact journals (see Products Report). In this reporting period there were 21 published journal articles, not including dissertations or theses. This year there were 26 JRN conference presentations, 6 of which were student-led.

Jornada LTER continued engagement with NRCS and BLM and international partners (Mongolia, Argentina) on development and use of state and transition models and their integration with monitoring data. LTER scientists worked with NRCS on revising protocols for state and transition model development, based on recent research stemming from the LTER site. Meetings with BLM focused on implementation of monitoring under the new Land Health rule using state and transition models and new tools based on LTER research, including the Rangeland Analysis Platform (https://rangelands.app/). Two visitors from Argentina worked with LTER scientists to develop ecological land classifications and state and transition models, resulting in published and draft manuscripts. An LTER-affiliated technician went to Mongolia in February-October 2024 to integrate soil carbon sampling into state and transition models via a field and laboratory sampling campaign. Two papers were published, one in *Frontiers in Ecology and Environment* (2024) and one in *Rangelands* (2023), that described how tools and concepts developed at the LTER site can be applied to land management. The 2024 Jornada Symposium, entitled "Perspective on Rangeland Resilience" took place on October 8, 2024, with 110 stakeholder and student participants in person and another 30 online.

Pietrasiak and lab offered a one day biocrust expo during the The Las Vegas Science & Technology Festival's GIANT EXPO. ca 8,000 attendees.

What do you plan to do during the next reporting period to accomplish the goals?

Obj. 1: quantify effects of interactions among triggers, connectivity-mediated feedbacks, and soil-geomorphic heterogeneity on the rate and nature of state transitions.

A. Grassland to shrubland transitions

We will continue long-term monitoring of vegetation structure changes across the Jornada Basin using combinations of NPP field plots, distributed quadrats, airborne, and satellite measurements. We will advance the NEAT experiment to examine interactions between biocrust, rainfall, and erosion-based feedbacks in the shrub encroachment process. The Ecotone Study will continue long-term monitoring of mammalian consumers and predators, precipitation, plant cover, and net primary production, focused on spatiotemporal niches of predators and consumers related to shrub encroachment, and adding a component on bat-insect trophic interactions.
We will continue the ThreshEx 2 experiment for at least 10 years to accumulate empirical data and understanding of how grazing interactions with PPT may produce long-term effects on *B. eriopoda* production, including amplifying feedbacks between patch size and productivity that inhibit *B. eriopoda* recovery after grazing if plant cover is reduced to small areas. In addition, grass ANPP is known to exhibit lag responses to PPT legacies, with previous-year ANPP explaining more current-year productivity than previous-year PPT. Legacy impacts of PPT are mediated in part by plant density, which constrains growth following drought and can boost growth following wet years. We are measuring *B. eriopoda* recovery following intensive grazing

in 1996-2000. Following previous methods, *B. eriopoda* foliar cover will be analyzed using repeated-measures linear-mixed effect models. We can use grass cover in 1996 as a covariate to adjust for pre-manipulation differences among paddocks.

B. Shrubland to grassland transitions

We are continuing long-term experiments to examine rainfall and reduced aeolian connectivity as triggers of grass recovery, evaluate the effects of shrub presence or absence on grass recovery, and the interactive effects of shrub competition, aeolian redistribution of sediments and other resources, and initial cover of grasses or shrubs on grass recovery. We will continue to monitor ANPP on 15 locations for 5 ecosystem types at 3 sites each. These seasonal data have been collected since 1989 and remain a critical part of our long-term data. Baseline data on biocrust cover, activity, and gas exchange will be used to model biocrust carbon fluxes at the 15 ANPP sites. Monitoring changes to biocrust cover is planned using regular UAV based multispectral imaging.

C. Shrubland to shrubland transitions

Four additional long-term shrub monitoring sites (stem-maps) will be established to assess directional changes in density and species to complement earlier analysis of long-term shrub-shrub transitions. Shrub demographic (ShrubDemo) experiments will be analyzed and submitted for publication, and new experiments will be designed to fill gaps in our understanding of the demographic processes underlying long-term shifts in both density and species.
To complement our new data on shrub demographic bottlenecks, we will continue greenhouse and field based QuadCam hardware and analysis systems for gradual deployment at the existing long-term NPP sites. These will add to our understanding of the role of rapid turnover in herbaceous and woody demographics. At our detailed ecohydrology research site we will continue sampling soil surface hydraulic properties to understand the role of surface sealing on runoff production. We will analyze long-term water, energy, and carbon flux measurements from the perspective of rainfall events (intensity, duration, distribution, and frequency) to understand triggers for vegetation productivity and phenology in response to pulse events.

D. Transition to novel ecosystems

We will continue experiments exploring invasion dynamics of the exotic Lehmann's lovegrass in response to climate, herbivory, and nutrients, including how the soil microbiomes of Lehmann's lovegrass and Black Grama may influence grass establishment processes.

E. Transitions under climate change

We will continue monitoring the long-term experiments including those in which we manipulate precipitation amount, precipitation variability, nitrogen, herbivory and vapor pressure deficit (VPD).

Obj. 2: explain and predict multi-scale spatial heterogeneity in alternative states.

We have initiated a collaborative process-based modeling effort building on our diverse understanding of dryland ecology at JRN and in other drylands (i.e., the plant, soil, climate, herbivory and connectivity interactions and feedbacks underlying state-changes). The resulting synthetic model for dryland ecosystems will be applicable at the Jornada and in global drylands. We will expand basin scale remote sensing analysis to examine historical and on-going state change in southwestern drylands across the Chihuahuan, Sonoran, and Mojave desert regions. We will leverage new data-streams on vegetation structure from aerial and satellite imagery and lidar to diagnose vegetation states and state-change dynamics.

Obj. 3: apply new analytical concepts and tools to broader extents (regional to global) and examine consequences for ecosystem services.

Restore NM results were published in 2024, with monitoring of shrub control efforts and a study on the roles of climate vs. grazing on change in vegetation cover in drylands of Mongolia. Our partnerships in the grazing lands of East Africa for rangeland monitoring and prediction also build on JRN research, providing new insight for operational livestock insurance programs in the Horn of Africa.

PRODUCTS

i. Book

n/a

ii. Book chapter

n/a

iii. Peer reviewed journal or conference proceeding (12/2023-11/2024)

Andreoni, Kieran J., Brandon T. Bestelmeyer, David C. Lightfoot, and Robert L. Schooley. 2024. "Effects of Multiple Mammalian Herbivores and Climate on Grassland–Shrubland Transitions in the Chihuahuan Desert." *Ecology* n/a (n/a): e4460. https://doi.org/10.1002/ecy.4460.

Bestelmeyer, Brandon T, Sarah E McCord, Dawn M Browning, Laura M Burkett, Emile Elias, Rick E Estell, Jeffrey E Herrick, et al. 2024. "Fulfilling the Promise of Digital Tools to Build Rangeland Resilience." *Frontiers in Ecology and the Environment* 22 (5): e2736. https://doi.org/10.1002/fee.2736.

Biancari, Lucio, Martín R. Aguiar, David J. Eldridge, Gastón R. Oñatibia, Yoann Le Bagousse-Pinguet, Hugo Saiz, Nicolas Gross, et al. 2024. "Drivers of Woody Dominance across Global Drylands." *Science Advances* 10 (41): eadn6007. https://doi.org/10.1126/sciadv.adn6007.

Cocciardi, Jennifer M., Ava M. Hoffman, Diego F. Alvarado-Serrano, Jill Anderson, Meghan Blumstein, Emma L. Boehm, Lana G. Bolin, et al. 2024. "The Value of Long-Term Ecological Research for Evolutionary Insights." *Nature Ecology & Evolution* 8 (9): 1584–92. https://doi.org/10.1038/s41559-024-02464-y.

Díaz-Martínez, Paloma, Fernando T. Maestre, Eduardo Moreno-Jiménez, Manuel Delgado-Baquerizo, David J. Eldridge, Hugo Saiz, Nicolas Gross, et al. 2024. "Vulnerability of Mineral-Associated Soil Organic Carbon to Climate across Global Drylands." *Nature Climate Change* 14 (9): 976–82. https://doi.org/10.1038/s41558-024-02087-y.

Eldridge, David J., Jingyi Ding, Josh Dorrough, Manuel Delgado-Baquerizo, Osvaldo Sala, Nicolas Gross, Yoann Le Bagousse-Pinguet, et al. 2024. "Hotspots of Biogeochemical Activity Linked to Aridity and Plant Traits across Global Drylands." *Nature Plants* 10 (5): 760–70. https://doi.org/10.1038/s41477-024-01670-7.

Feldman, Andrew F., Sasha Reed, Cibele Amaral, Alicja Babst-Kostecka, Flurin Babst, Joel Biederman, Charles Devine, et al. 2024. "Adaptation and Response in Drylands (ARID): Community Insights for Scoping a NASA Terrestrial Ecology Field Campaign in Drylands." *Earth's Future* 12 (9): e2024EF004811. https://doi.org/10.1029/2024EF004811.

Flombaum, Pedro, Lucía Vivanco, Felipe Cabrera, and Osvaldo E. Sala. 2024. "Grassland Communities and Ecosystems." In *Encyclopedia of Biodiversity*, 382–90. Elsevier. https://doi.org/10.1016/B978-0-12-822562-2.00067-0.

Ghimire, Rajan, Deb Raj Aryal, Niall P. Hanan, Sawssan Boufous, Owen Burney, O. John Idowu, Hatim M. E. Geli, Brian Hurd, and Lara Prihodko. 2024. "Carbon Sequestration through Sustainable Land Management Practices in Arid and Semiarid Regions: Insights from New Mexico." *Agrosystems, Geosciences & Environment* 7 (4): e70019. https://doi.org/10.1002/agg2.70019.

Hanan, N. P., and L. B. Hutley. 2024. "Editorial: Current Insights in Drylands." *Frontiers in Environmental Science* 12 (March). https://doi.org/10.3389/fenvs.2024.1391211.

Lopez, Andrea, Mark Anthony, Jovani Catalan-Dibene, Scott Ferrenberg, Samuel E. Jordan, Brooke Osborne, Sasha Reed, and Adriana L. Romero-Olivares. 2024. "Dryland Fungi Are Spatially Heterogeneous and Resistant to Global Change Drivers." *Ecosphere* 15 (12): e70031. https://doi.org/10.1002/ecs2.70031.

McCord, Sarah E., Joseph R. Brehm, Lea A. Condon, Leah T. Dreesmann, Lisa M. Ellsworth, Matthew J. Germino, Jeffrey E. Herrick, et al. 2024. "Evaluation of the Gap Intercept Method to Measure Rangeland Connectivity." *Rangeland Ecology & Management*, October. https://doi.org/10.1016/j.rama.2024.09.001.

Monger, Curtis, Erika Michéli, Felipe Aburto, and Danny Itkin. 2024. "Soil Classification as a Tool for Contributing to Sustainability at the Landscape Scale and Forecasting Impacts of Management Practices in Agriculture and Forestry." *Soil and Tillage Research* 244 (December):106216. https://doi.org/10.1016/j.still.2024.106216.

Myers, Emily R., Dawn M. Browning, Laura M. Burkett, Darren K. James, and Brandon T. Bestelmeyer. 2024. "Novel Use of Image Time-Series to Distinguish Dryland Vegetation Responses to Wet and Dry Years." *Journal of Remote Sensing*, July, remotesensing.0190. https://doi.org/10.34133/remotesensing.0190.

Nelson, Jacob A., Sophia Walther, Fabian Gans, Basil Kraft, Ulrich Weber, Kimberly Novick, Nina Buchmann, et al. 2024. "X-BASE: The First Terrestrial Carbon and Water Flux Products from an Extended Data-Driven Scaling Framework, FLUXCOM-X." *Biogeosciences* 21 (22): 5079–5115. https://doi.org/10.5194/bg-21-5079-2024.

Nyachoti, Syprose K., Victor H. Garcia, Curtis Monger, Craig Tweedie, Thomas E. Gill, Lixin Jin, and Lin Ma. 2024. "Uranium-Series and Strontium Isotope Systematics in Soil Carbonates from Dryland Critical Zones: Implications for Soil Inorganic Carbon Storage and Transformation." *Geochimica et Cosmochimica Acta* 377 (July):34–51. https://doi.org/10.1016/j.gca.2024.05.020.

Peinetti, H. Raúl, Brandon T. Bestelmeyer, Claudia C. Chirino, Florencia L. Vivalda, and Alicia G. Kin. 2024. "Thresholds and Alternative States in a Neotropical Dry Forest in Response to Fire Severity." *Ecological Applications* 34 (2): e2937. https://doi.org/10.1002/eap.2937.

Roberts, Trevor, and Niall P. Hanan. 2024. "Thinning Relationships of Woody Encroachers in a US Southwestern Shrubland." *Journal of Arid Environments* 225 (December):105245. https://doi.org/10.1016/j.jaridenv.2024.105245.

Romero-Olivares, Adriana L., Andrea Lopez, Jovani Catalan-Dibene, Scott Ferrenberg, Samuel E. Jordan, and Brooke Osborne. 2024. “Effects of Global Change Drivers on the Expression of Pathogenicity and Stress Genes in Dryland Soil Fungi.” *mSphere* 0 (0): e00658-24. https://doi.org/10.1128/msphere.00658-24.

Smith, Melinda D., Kate D. Wilkins, Martin C. Holdrege, Peter Wilfahrt, Scott L. Collins, Alan K. Knapp, Osvaldo E. Sala, et al. 2024. “Extreme Drought Impacts Have Been Underestimated in Grasslands and Shrublands Globally.” *Proceedings of the National Academy of Sciences* 121 (4): e2309881120. https://doi.org/10.1073/pnas.2309881120.

Terry, Tyson J., Osvaldo E. Sala, Scott Ferrenberg, Sasha C. Reed, Brooke Osborne, Samuel Jordan, Steven Lee, and Peter B. Adler. 2024. “Disturbance Amplifies Sensitivity of Dryland Productivity to Precipitation Variability.” *Science Advances* 10 (30): eadm9732. https://doi.org/10.1126/sciadv.adm9732.

iv. Thesis or Dissertation

Andreoni, Kieran. 2024. “Mammalian Herbivores Reinforce Ecological State Transitions in the Chihuahuan Desert.” Thesis, University of Illinois at Urbana-Champaign. https://hdl.handle.net/2142/124466.

Burruss, Seth. 2024. “Using a Hyperspectral Sensor Mounted on an Unoccupied Aircraft System to Detect Biological Soil Crust’s Spatial Distribution in the Chihuahuan Desert Ecosystem to Determine Their Annual Carbon Fixation Capacity.” M.S., United States -- New Mexico: New Mexico State University. https://www.proquest.com/docview/3067391521/abstract/265B4B32F3FD43FBPQ/1.

Embury, Emily L. 2024. “Microbial Communities in the Changing Vegetation of the Chihuahuan Desert.” M.S., United States -- New Mexico: New Mexico State University. https://www.proquest.com/docview/3066988836/abstract/2C9D0B3C0ADE4BAEPQ/1.

Fischella, Michael Raymond. 2024. “Ecogeomorphic Interactions in Drylands: Aeolian Processes.” Ph.D., United States -- California: University of California, Los Angeles. https://www.proquest.com/docview/3104960797/abstract/50109DFA3A6344BBPQ/1.

Howlider, Habibur Rahman. 2024. “Upscaling Sapflow Measurements to Footprint Transpiration Estimations in the Jornada Experimental Range, New Mexico, USA.” M.S., United States -- Texas: The University of Texas at El Paso. https://www.proquest.com/docview/3104760532/abstract/5F6D8D7D16CE4238PQ/1.

Hurtado, Ruby Yaritza. 2024. “Landscape Position Impacts on the Water Balance in the Chihuahuan Desert: Insights From Cosmic-Ray Neutron Sensing at Upland Watershed and Downstream Playa Sites.” M.S., United States -- Arizona: Arizona State University. https://www.proquest.com/docview/3089816174/abstract/32C7AF6343AC4BDEPQ/1.

Jordan, Samuel. 2024. “The Interactive Effects of Precipitation and Disturbance on the Functioning of Dryland Ecosystems as Modulated by Mean Annual Precipitation.” Arizona State University. https://keep.lib.asu.edu/items/193575.

Lee, Steven. 2024. “Biological Interactions and Disturbance in Arid Ecosystems: Examples From the Great Basin, Mojave, and Northern Chihuahuan Deserts.” Ph.D., United States -- New Mexico: New Mexico State University. https://www.proquest.com/docview/3098531407/abstract/56E81E1291C84618PQ/1.

Ramirez, Sarah. 2024, November. Gas-mediated microbial-plant interactions. New Mexico State University, Department of Biology

Schaefer, Anthony. 2024. “Linking Biological Soil Crust Abundance, Distribution, and Composition to Ecological Site and State in the Chihuahuan Desert.” M.S., United States -- New Mexico: New Mexico State University. https://www.proquest.com/docview/3066841575/abstract/8B78BA841E9E4B77PQ/1.

v. Datasets

(see attached at the end of the document)

IMPACT

What is the impact on the development of the principal discipline(s) of the project?

The Jornada Basin LTER project (JRN-LTER) continues to advance understanding and theory of dryland ecosystem functioning, relevant to applied range management and broader ecological theory. In particular, JRN LTER advances the application of ecological understanding of state transitions and alternative stable states in drylands, the climate change impacts in drylands, and the development of ecological theory on state change and ecosystem dynamics in temporally and spatially complex environments.

What is the impact on other disciplines?

Jornada Basin LTER results are directly relevant to livestock, range management, and dryland ecosystems across the southwestern USA and other arid and semi-arid lands globally.

JRN rangeland monitoring tools have been developed collaboratively with, and adopted for operational programs by, numerous Federal Agencies across the USA (e.g., BLM and NRCS) and globally (e.g. Mongolia and East Africa). JRN collaborations and outreach impact a variety of US and international, tropical, and temperate drylands.

What is the impact on the development of human resources?

Student training and mentoring opportunities in dryland ecology this year included direct support for 6 graduate students and 4 REU students, and participation of a larger number of students attending the Desert Ecology short-course and conducting research at the JRN with support from their JRN advisors, home universities, and independent research fellowships. We continue our commitment to accommodate more "non-traditional" undergraduate students. We continued our program for graduate networking and professional development (the "Desert Discourse" Series).

What was the impact on teaching and educational experiences?

K-12, undergraduate and graduate students from our host communities and neighboring institutions (K-12, Community and 4-year Colleges) benefit from field research opportunities and education/outreach activities.

What is the impact on physical resources that form infrastructure?

Nothing to report.

What is the impact on institutional resources that form infrastructure?

Nothing to report.

What is the impact on information resources that form infrastructure?

The JRN Information Management (IM) team continues to prioritize providing up-to-date research data described with consistent, high-quality metadata, and we are improving the discoverability and accessibility of Jornada data each year. Since JRN's last annual report, data management activity resulted in 8 new datasets and updates to 230 unique existing datasets published in our primary data catalog at the EDI repository (Figure 5), metrics which represent a slight decline compared our activity in 2023. We attribute this decline to two factors. First, the IM team focused on updating long-term datasets and publishing new data in advance of preparation for the new proposal (submitted in March 2024), and much of this activity occurred in the annual reporting period prior to this one. Second, in late March of 2024, the JRN IM Team lost a significant fraction of its IT infrastructure and support due to the indefinite shutdown of server and networking systems at the USDA Jornada Experimental Range office. For the past six months the IM team has devoted significant effort to moving servers, restoring networked storage and backup systems, and rebuilding workflows for managing and publishing research data. This change in our IT environment was a significant setback, but the IM team has taken this opportunity to improve the reliability, security, and resilience of the JRN IM system by making

use of modern cloud-based services and establishing redundant, distributed backups. Throughout the past year, more than thirty new datasets were quality-assured, described with metadata, and prepared for publication (though delayed due to IT issues). These include never-before-published datasets from projects completed early in the JRN program, new sensor network datasets, and a large collection of spatial data on Jornada Basin soil and vegetation cover. The IM team has also made progress training JRN students and investigators to us the ezEML metadata editor from the Environmental Data Initiative (EDI) repository, which has led to more efficient, selfguided preparation and publication of datasets from these contributors. Development efforts for harmonizing Jornada data and creating analysis ready data products (meteorology, biodiversity) are also ongoing. The JRN IM team engages frequently with the LTER Network's Information Management Committee, the EDI repository, and other partners in the environmental science and data community to support and contribute to open science and sound data management practices.

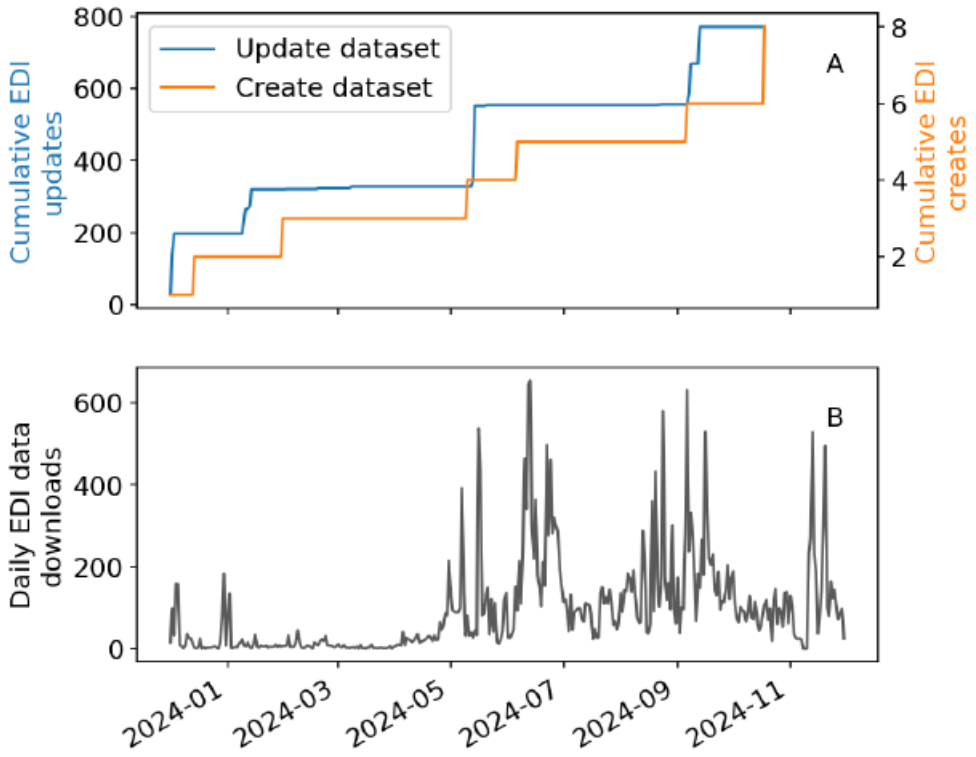

Figure 5. Publication and use of Jornada datasets during the 2024 annual report period. Panel A shows cumulative updates to existing datasets published at the EDI repository (blue line) and new datasets published (gold line, 8 total). Panel B shows daily data downloads from the EDI data portal, which have been filtered to remove robots and other automated events.

What is the impact on technology transfer?

Nothing to report.

What is the impact on society beyond science and technology?

Our K-12 outreach program reaches most children in the local school district and many additional children in other school districts across New Mexico. Field and classroom/schoolyard programs increase awareness and understanding in the general public with major long-term benefits for environmental and STEM literacy. The JRN-LTER has been working towards making its outreach programs more inclusive and accessible for marginalized communities. Participants in the K-12 programs for JRN include underrepresented and underserved groups. 75% of program participants are economically disadvantaged, and 77% are Hispanic, as defined and classified by the New Mexico Public Education Department. Jornada's K-12 outreach works with entire classes, schools, and sometimes districts. This helps promote equity by ensuring that all students are exposed to these enriching opportunities, not just those who have the resources to sign up for voluntary science education opportunities. To formalize our consideration of DEI in education and outreach programming, Asombro created a DEI lesson screener in 2020.
The screener includes nine criteria that are formally evaluated in the early stages of lesson development. For example, we ensure that each lesson contains stories of diverse people and careers in STEM, that it includes connections to Spanish and Native languages when possible, and that Spanish versions are available for all worksheets and video captions. We use this tool for every new lesson we develop, and we shared this tool with the LTER Network Education and Outreach Committee.

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210616002.1	Soil physical and chemical properties of gypsum & non-gypsum soils from the Chihuahuan and Mojave Deserts in 2023	2024	Gobbie, Katelyn G;Pietrasiak, Nicole;Drenovsky, Rebecca E	5/17/23	6/9/23	https://doi.org/10.6073/pasta/01123dd2785f8ff3cb314a837d3bb6fd
knb-lter-jrn.210616001.1	Cover and frequency of biological soil crust community types, moss species, vascular plants, and abiotic land surface features, on gypsum & non-gypsum soils from the Chihuahuan and Mojave Deserts in 2023	2024	Gobbie, Katelyn G;Drenovsky, Rebecca E;Pietrasiak, Nicole	5/17/23	6/9/23	https://doi.org/10.6073/pasta/488c8b229fed3e872a57a9125986e5a8
knb-lter-jrn.210578001.1	Physical soil characteristics, microbial community composition, extracellular enzymatic activity, biologically based phosphorus (BBP) pools, and available phosphorus from two soil depths, four microhabitats, and four landforms at the Jornada Experimental Range, 2021.	2024	Stover, Dylan;McLaren, Jennie;Pietrasiak, Nicole;Jin, Lixin	6/1/21	6/30/22	https://doi.org/10.6073/pasta/9085a63e6ff1e310f13784b6fa0f8616
knb-lter-jrn.210548103.31	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 15 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	9/2/24	https://doi.org/10.6073/pasta/00e34665d21ffb748260fb663e481210
knb-lter-jrn.210548102.31	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 14 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	9/2/24	https://doi.org/10.6073/pasta/6eb5d55c2548ce5260d3cdc50e916e9b
knb-lter-jrn.210548101.32	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 13 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	8/30/24	https://doi.org/10.6073/pasta/007191dc261bc6b3bcbce4000aa127f5
knb-lter-jrn.210548100.33	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 11 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	8/27/24	https://doi.org/10.6073/pasta/1f585e6d43e614e9a89c5b881b82e6f1
knb-lter-jrn.210548099.32	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 10 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	8/27/24	https://doi.org/10.6073/pasta/1aba6511c55713b63cf108e7cbcb3e25
knb-lter-jrn.210548098.31	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 9 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	9/6/24	https://doi.org/10.6073/pasta/8aec7eb6ad9ad7c72cacba5ad6d768cc
knb-lter-jrn.210548097.31	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 8 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	9/6/24	https://doi.org/10.6073/pasta/2aff0c622215b64056837b81a16bada7
knb-lter-jrn.210548096.30	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 7 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	9/6/24	https://doi.org/10.6073/pasta/a1c34ae9e0492e008e2de4cd8a7f6144
knb-lter-jrn.210548095.29	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 6 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/23/15	9/6/24	https://doi.org/10.6073/pasta/d798c7c245f1f39d8362c71badc4f9c1

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210548094.31	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 5 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	9/6/24	https://doi.org/10.6073/pasta/c65ca8b1077878a5af0180495cc8974c
knb-lter-jrn.210548093.32	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 4 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	9/6/24	https://doi.org/10.6073/pasta/7e736dc581d8333a4ab6f39c33a8ac0b
knb-lter-jrn.210548092.31	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 3 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/11/17	8/28/24	https://doi.org/10.6073/pasta/e522aa9730c706edc0e46bceef116f8f
knb-lter-jrn.210548091.30	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 2 meteorological station: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/6/24	https://doi.org/10.6073/pasta/3e8d337d57c7080807120f75cd6adc62
knb-lter-jrn.210548090.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 15 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/11/24	https://doi.org/10.6073/pasta/656e0d5e9b53e1ae2a62c041f0b0feac
knb-lter-jrn.210548089.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 14 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	6/11/13	9/11/24	https://doi.org/10.6073/pasta/c6cd36ff91b30e7c82ed32206eed7dd1
knb-lter-jrn.210548088.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 13 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/23/14	9/11/24	https://doi.org/10.6073/pasta/aef2bc9c6cab3c8f9b792b78209ab9b6
knb-lter-jrn.210548087.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 12 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/7/13	9/11/24	https://doi.org/10.6073/pasta/5e72ec10d743b0334471f6158e384cc2
knb-lter-jrn.210548086.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 11 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/11/24	https://doi.org/10.6073/pasta/0eccad78887a39d7aab8a250aba03f54
knb-lter-jrn.210548085.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 10 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/7/13	9/11/24	https://doi.org/10.6073/pasta/cc11decbd354bdba8840441fa240e9c0
knb-lter-jrn.210548084.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 9 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/7/13	9/11/24	https://doi.org/10.6073/pasta/42fad788865263ba56a623de879984a5
knb-lter-jrn.210548083.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 8 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/7/13	9/11/24	https://doi.org/10.6073/pasta/b90e9d46d8d76b5c718d1a782ee57976
knb-lter-jrn.210548082.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 7 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/11/24	https://doi.org/10.6073/pasta/b64595fdcd50a05c48b017286ea31cc4

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210548081.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 6 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/11/24	https://doi.org/10.6073/pasta/d027fb3648ac2fadd3ff98d20e8804f1
knb-lter-jrn.210548080.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 5 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/11/24	https://doi.org/10.6073/pasta/8b048608506b9e2452e4dbbb891f5b1e
knb-lter-jrn.210548079.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 4 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/6/13	9/11/24	https://doi.org/10.6073/pasta/d272c8d13ac8a4bc7c27735873bda675
knb-lter-jrn.210548078.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 3 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/15/13	9/11/24	https://doi.org/10.6073/pasta/ea5f25af20a186ed91930aa51af58056
knb-lter-jrn.210548077.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 2 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/15/13	9/11/24	https://doi.org/10.6073/pasta/2618eca66e581816c5a1963fb8c0f530
knb-lter-jrn.210548076.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 1 meteorological station: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/15/13	9/11/24	https://doi.org/10.6073/pasta/0ea9aad1fa98c6bab5334605cd13c6ca
knb-lter-jrn.210548075.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 15 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/12/24	https://doi.org/10.6073/pasta/cff29bcf33af3be43137c7a4dfb7a83b
knb-lter-jrn.210548074.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 14 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	6/11/13	8/25/24	https://doi.org/10.6073/pasta/de4353c45956f74e236607eb29c07fc5
knb-lter-jrn.210548073.41	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 13 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/23/14	9/12/24	https://doi.org/10.6073/pasta/c650b026e462995aec720a6741e0c0a8
knb-lter-jrn.210548072.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 12 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	4/25/13	9/12/24	https://doi.org/10.6073/pasta/a2a1f132189c0a254ca0c346f34caa4d
knb-lter-jrn.210548071.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 11 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/12/24	https://doi.org/10.6073/pasta/c9f86bfeadbb6105adf09b243df5f977
knb-lter-jrn.210548070.41	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 10 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/7/13	9/12/24	https://doi.org/10.6073/pasta/3b6fc5374ba78baf935b5132e8f5c15d
knb-lter-jrn.210548069.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 9 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/7/13	9/12/24	https://doi.org/10.6073/pasta/1ad89ba4d45af6615f91eac95d812e7b

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210548068.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 8 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/7/13	9/12/24	https://doi.org/10.6073/pasta/328c564bdced6f40bcfd5860b16243fa
knb-lter-jrn.210548067.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 7 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/12/24	https://doi.org/10.6073/pasta/b1c3c4524096199da7b040b6a279f4cc
knb-lter-jrn.210548066.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 6 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	9/12/24	https://doi.org/10.6073/pasta/cef6c809c3229b9a4949a21230d5045e
knb-lter-jrn.210548065.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 5 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/8/13	8/25/24	https://doi.org/10.6073/pasta/9f0b313af0578885cb4607545ecbe32f
knb-lter-jrn.210548064.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 4 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/6/13	9/12/24	https://doi.org/10.6073/pasta/06a286a3a26f84acbdced0742c95b996
knb-lter-jrn.210548063.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 3 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/15/13	9/12/24	https://doi.org/10.6073/pasta/7e3d9eca419611a02a83887d22a24f60
knb-lter-jrn.210548062.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 2 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/15/13	9/12/24	https://doi.org/10.6073/pasta/46cc58d495150415b3930d8451200389
knb-lter-jrn.210548061.41	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 1 meteorological station: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/15/13	8/23/24	https://doi.org/10.6073/pasta/be49f3583943d22130268d0d3b70e785
knb-lter-jrn.210548060.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 15 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/8/13	9/11/24	https://doi.org/10.6073/pasta/bf98c52b3b3e9a86693b34ed674682f1
knb-lter-jrn.210548059.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 14 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	6/11/13	9/11/24	https://doi.org/10.6073/pasta/5a0b2b5a67aca17cb3dd6bad4b944e7d
knb-lter-jrn.210548058.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 13 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/23/14	9/11/24	https://doi.org/10.6073/pasta/064d9212fc40ef0ffce4df928f83e874
knb-lter-jrn.210548057.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 12 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/7/13	9/11/24	https://doi.org/10.6073/pasta/4320c8a8f330ce800c878e8c6a6d361b
knb-lter-jrn.210548056.35	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 11 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/8/13	9/11/24	https://doi.org/10.6073/pasta/3d9f35354ddb0410b93d2ee0b7c7a982
knb-lter-jrn.210548055.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 10 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/7/13	9/11/24	https://doi.org/10.6073/pasta/fb919ffc2a8c4e38527e046f16e91cbd

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210548054.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 9 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/7/13	9/11/24	https://doi.org/10.6073/pasta/cd3be65bbe62a0068577fca0cd661a80
knb-lter-jrn.210548053.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 8 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/7/13	9/11/24	https://doi.org/10.6073/pasta/017e3122ff2bf45caa7c0e262d16787c
knb-lter-jrn.210548052.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 7 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/8/13	9/11/24	https://doi.org/10.6073/pasta/82be1e7bb2bc0aaa5c3dfaadf3d2feb7
knb-lter-jrn.210548051.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 6 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	4/29/13	9/11/24	https://doi.org/10.6073/pasta/1b302e6981ddd90b0d4a653c982bd530
knb-lter-jrn.210548050.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 5 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/8/13	9/11/24	https://doi.org/10.6073/pasta/993d5823780f788e1f3f386b86aff87d
knb-lter-jrn.210548049.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 4 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/6/13	9/11/24	https://doi.org/10.6073/pasta/d245b975da5144adb5676e2effbd6177
knb-lter-jrn.210548048.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 3 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/15/13	9/11/24	https://doi.org/10.6073/pasta/5e30b8c1005617e148739f006ca6fefd
knb-lter-jrn.210548047.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 2 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/15/13	9/11/24	https://doi.org/10.6073/pasta/9e86a1ac16d9a58257de4bfdd6590fd2
knb-lter-jrn.210548046.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 1 meteorological station: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/15/13	9/11/24	https://doi.org/10.6073/pasta/12e945b2889d436840bc09946881b009
knb-lter-jrn.210548045.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 15 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/6e4d4c77512dc262cfb7b2fd6c7fcd7c
knb-lter-jrn.210548044.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 14 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/5e2a9fd03b9bbed2d2d8f8212f39e9f2
knb-lter-jrn.210548043.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 13 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/2fe7aa7f0e0e1c116176b0215374b7da
knb-lter-jrn.210548042.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 12 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/7c705c0cfb2736ee4e74e9acfba86054
knb-lter-jrn.210548041.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 11 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/18e3c21d85a25f919289ca535ca1532d
knb-lter-jrn.210548040.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 10 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/edfd0181601f6994a2b72980811edf77
knb-lter-jrn.210548039.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 9 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/ed08a482f2eaebcf6e0de9af5bb53368

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210548038.36	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 8 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	8/25/24	https://doi.org/10.6073/pasta/d464047f0320d314eefe4b469de3d498
knb-lter-jrn.210548037.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 7 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/e41a4dbe9d9440600014b2376e0661e1
knb-lter-jrn.210548036.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 6 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/7bd88436f6f75b2e665637869dcfc3fb
knb-lter-jrn.210548035.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 5 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/7dc256d24872d9a6241f01d47ee1d129
knb-lter-jrn.210548034.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 4 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/e606c6875782f1f791562fe3dac9c564
knb-lter-jrn.210548033.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 3 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/49be318e12dcc21025de4139b97e4a5a
knb-lter-jrn.210548032.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 2 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/3e65caa1817fcc7b2856b16171ea569b
knb-lter-jrn.210548031.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 1 meteorological station: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/b07327e28c0b81339403cb7ef56c0ea8
knb-lter-jrn.210548030.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 15 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/b238637ce1f87972508a1078af6dfd09
knb-lter-jrn.210548029.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 14 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/4d4f6c9ebc935a7aff6aa0a84a9a34b8
knb-lter-jrn.210548028.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 13 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/6a8ceca57e1d77fdc27f471ad29094f9
knb-lter-jrn.210548027.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 12 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/3a8cefc7e0b1bc16fa59486dd0bea468
knb-lter-jrn.210548026.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 11 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/5d198e44f50476166a9eba92d604c012
knb-lter-jrn.210548025.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 10 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/fcbe774b0fb84acd1326ded03569677b
knb-lter-jrn.210548024.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 9 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/b6bba506c54923ce0593fd52d49f5640
knb-lter-jrn.210548023.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 8 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/f3e387dc8b4734a00c9f70dad681ecb7

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210548022.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 7 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	8/25/24	https://doi.org/10.6073/pasta/cc5449a24fb84d538c20e8106e8f5fa5
knb-lter-jrn.210548021.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 6 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/a33ae15620ceb62bfa41b5b94bfd97c5
knb-lter-jrn.210548020.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 5 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/84186f862640cd11a5298d7a8abb4ddf
knb-lter-jrn.210548019.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 4 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/877d52247064784e6c4c864b071173a0
knb-lter-jrn.210548018.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 3 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/c6c32d644549f40275f57ee2f2744f10
knb-lter-jrn.210548017.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 2 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/2520a1015a98c0d941e6754a720b02d1
knb-lter-jrn.210548016.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 1 meteorological station: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	8/10/17	9/12/24	https://doi.org/10.6073/pasta/d33badc456a595c8f2a0f3e75bd8eb2b
knb-lter-jrn.210548015.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 15 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/8/13	9/12/24	https://doi.org/10.6073/pasta/99e6511436d029c7bb77485750e48a4f
knb-lter-jrn.210548014.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 14 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	6/10/13	9/12/24	https://doi.org/10.6073/pasta/2e03ab35128829e4b1191d5f84304065
knb-lter-jrn.210548013.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 13 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/23/14	9/12/24	https://doi.org/10.6073/pasta/5a6a69c2a56c5b7619f0198aa837163b
knb-lter-jrn.210548012.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 12 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	4/25/13	9/12/24	https://doi.org/10.6073/pasta/79c755978c2a9989b793c3fc067cd8e4
knb-lter-jrn.210548011.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 11 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/8/13	8/25/24	https://doi.org/10.6073/pasta/4624f1d443f7870dffe3ba5cdd23b020
knb-lter-jrn.210548010.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 10 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/7/13	8/25/24	https://doi.org/10.6073/pasta/1aa6f6829713ff4ce92bf11482ea4bc2
knb-lter-jrn.210548009.37	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 9 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/7/13	8/25/24	https://doi.org/10.6073/pasta/21ec0f3d20ceea7c80369057eb8d1452

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210548008.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 8 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/7/13	8/25/24	https://doi.org/10.6073/pasta/9ac97a16c8df4d2f7b69c056c973bc65
knb-lter-jrn.210548007.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 7 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/8/13	8/25/24	https://doi.org/10.6073/pasta/19466e316f4253635123934fc446167a
knb-lter-jrn.210548006.38	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 6 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/8/13	9/12/24	https://doi.org/10.6073/pasta/1a037e63502ffb4101097e26ada11e00
knb-lter-jrn.210548005.40	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 5 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/8/13	8/25/24	https://doi.org/10.6073/pasta/6dbb54aceb071049791bbceb9e1a1b86
knb-lter-jrn.210548004.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 4 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/6/13	9/12/24	https://doi.org/10.6073/pasta/37fc3b97cf7e84a9d55794511502e49e
knb-lter-jrn.210548003.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 3 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/15/13	8/25/24	https://doi.org/10.6073/pasta/aca0b1fd1a0c4294fddf7b04a2c455f6
knb-lter-jrn.210548002.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 2 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/15/13	8/25/24	https://doi.org/10.6073/pasta/da92fc519a3653ad331f1ab63606c528
knb-lter-jrn.210548001.39	Jornada Basin LTER Cross-scale Interactions Study (CSIS) Block 1 meteorological station: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/15/13	5/10/24	https://doi.org/10.6073/pasta/f088f23eea2bd05614709e5ca8c8866c
knb-lter-jrn.210465001.1	Water level data (15-min frequency) from 18 instrumented playas in the Jornada Basin, southern New Mexico, USA, from 2016-2022	2023	Kimsal, Charles;Anderson, John;Hall, Seth;Vivoni, Enrique;Sala, Osvaldo E	6/15/16	11/7/22	https://doi.org/10.6073/pasta/fd786d8bfaf010446b3ffbb50b8bd258
knb-lter-jrn.210444001.2	Mammal occurrence data derived from camera traps in grassland-shrubland ecotones at 24 sites in the Jornada Basin, southern New Mexico, USA, 2014-ongoing	2024	Wagnon, Casey J;Schooley, Robert L;Bestelmeyer, Brandon T	1/1/14	12/31/20	https://doi.org/10.6073/pasta/bf6aea9b4ff8656d6a7d3b0a1e5f9f30
knb-lter-jrn.210437120.28	Jornada Basin LTER: Wireless substation at NPP T-WEST site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/15/13	9/6/24	https://doi.org/10.6073/pasta/7ab133c375476ae7e32254466af1ff2c
knb-lter-jrn.210437119.28	Jornada Basin LTER: Wireless substation at NPP T-TAYL site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	6/18/13	9/6/24	https://doi.org/10.6073/pasta/2adb4e5dd031b29a3cb98493c7276a1f
knb-lter-jrn.210437118.29	Jornada Basin LTER: Wireless substation at NPP T-EAST site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/15/13	8/25/24	https://doi.org/10.6073/pasta/75f6ec93057c628d009d71da3f9f3236

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437117.29	Jornada Basin LTER: Wireless substation at NPP P-TOBO site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	10/2/13	9/6/24	https://doi.org/10.6073/pasta/9bbc76b383c12f963cde34ed3e494299
knb-lter-jrn.210437116.29	Jornada Basin LTER: Wireless substation at NPP P-SMAL site: 30-minute soil volumetric water content data: 2017 - ongoing	2024	Duniway, Michael	3/16/17	9/6/24	https://doi.org/10.6073/pasta/c54bdd6bfbd696a92971bfb1fd2615f5
knb-lter-jrn.210437115.29	Jornada Basin LTER: Wireless substation at NPP M-WELL site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	6/18/13	9/6/24	https://doi.org/10.6073/pasta/4843e4f3e644bc128d360b87e782c1c8
knb-lter-jrn.210437114.28	Jornada Basin LTER: Wireless substation at NPP M-RABB site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	6/18/13	6/24/24	https://doi.org/10.6073/pasta/8164270a2f1fd8f9b13bac8413ff4d17
knb-lter-jrn.210437113.29	Jornada Basin LTER: Wireless substation at NPP M-NORT site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	6/18/13	9/6/24	https://doi.org/10.6073/pasta/cedf0ada545f6019796ffa74718a7ecc
knb-lter-jrn.210437112.29	Jornada Basin LTER: Wireless substation at NPP G-SUMM site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	6/18/13	9/6/24	https://doi.org/10.6073/pasta/9f43687c9dfeffb9890723d847c36721
knb-lter-jrn.210437111.29	Jornada Basin LTER: Wireless substation at NPP G-IBPE site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/17/13	9/6/24	https://doi.org/10.6073/pasta/de8ecea8eb9d4dc4d05056698eb228c5
knb-lter-jrn.210437110.28	Jornada Basin LTER: Wireless substation at NPP G-BASN site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/12/13	9/7/24	https://doi.org/10.6073/pasta/fbe7d96ea67ba3d66a2a13888b8a943d
knb-lter-jrn.210437109.28	Jornada Basin LTER: Wireless substation at NPP C-SAND site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/12/13	8/25/24	https://doi.org/10.6073/pasta/755f9a1e565a86c09f3c9074ea3b8803
knb-lter-jrn.210437108.29	Jornada Basin LTER: Wireless substation at NPP C-GRAV site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/12/13	8/25/24	https://doi.org/10.6073/pasta/f5fa0546f93f9014b336711ea84021ee
knb-lter-jrn.210437107.29	Jornada Basin LTER: Wireless substation at NPP C-CALI site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/19/13	8/25/24	https://doi.org/10.6073/pasta/12c9225fb7149662f7dcfc81331933f3
knb-lter-jrn.210437106.40	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: 15-minute summary data: 2016 - ongoing	2024	Anderson, John	3/1/16	9/7/24	https://doi.org/10.6073/pasta/a1ebfab87fd339fe8691ceec33c2f453
knb-lter-jrn.210437105.41	Jornada Basin LTER: Wireless meteorological station at NPP T-WEST site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/30/13	9/6/24	https://doi.org/10.6073/pasta/42bc06bd722ec75bef32b7fcb2346af9
knb-lter-jrn.210437104.41	Jornada Basin LTER: Wireless meteorological station at NPP T-TAYL site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/7/13	9/6/24	https://doi.org/10.6073/pasta/97057e11795235a136a08a0595108078
knb-lter-jrn.210437103.41	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/29/13	9/6/24	https://doi.org/10.6073/pasta/7013c249bf537460181099dac6a2514d
knb-lter-jrn.210437102.40	Jornada Basin LTER: Wireless meteorological station at NPP P-TOBO site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/1/14	9/6/24	https://doi.org/10.6073/pasta/7c23862ee98dfecfac301fca1483b3f2

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437101.41	Jornada Basin LTER: Wireless meteorological station at NPP P-SMAL site: Daily average soil volumetric water content data: 2017 - ongoing	2024	Duniway, Michael	3/14/17	9/6/24	https://doi.org/10.6073/pasta/55f943518f06110858b910f117fead03
knb-lter-jrn.210437100.42	Jornada Basin LTER: Wireless meteorological station at NPP P-COLL site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/27/13	9/6/24	https://doi.org/10.6073/pasta/eb5ebc3471e087a49503d44a1e7ae52b
knb-lter-jrn.210437099.41	Jornada Basin LTER: Wireless meteorological station at NPP M-WELL site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/13/13	9/6/24	https://doi.org/10.6073/pasta/151be94a8207e17d0dda906af04122f2
knb-lter-jrn.210437098.40	Jornada Basin LTER: Wireless meteorological station at NPP M-RABB site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/12/13	5/9/24	https://doi.org/10.6073/pasta/2b9778a17090b671e63b222618fce486
knb-lter-jrn.210437097.41	Jornada Basin LTER: Wireless meteorological station at NPP M-NORT site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	10/2/14	9/6/24	https://doi.org/10.6073/pasta/d8b98a0f9de7f208622fd3a3fee020f5
knb-lter-jrn.210437096.40	Jornada Basin LTER: Wireless meteorological station at NPP G-SUMM site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/24/13	9/6/24	https://doi.org/10.6073/pasta/cf6fbe6daba157cb125f3c602cf1b559
knb-lter-jrn.210437095.41	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/6/13	9/6/24	https://doi.org/10.6073/pasta/472d5738255c827aed5c079e27595850
knb-lter-jrn.210437094.42	Jornada Basin LTER: Wireless meteorological station at NPP G-BASN site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/26/13	9/6/24	https://doi.org/10.6073/pasta/43c6486579c10bc48db5a6961c566b70
knb-lter-jrn.210437093.43	Jornada Basin LTER: Wireless meteorological station at NPP C-SAND site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	11/20/13	9/6/24	https://doi.org/10.6073/pasta/291a05272cdfcd8f5ca0ed774a47be7b
knb-lter-jrn.210437092.42	Jornada Basin LTER: Wireless meteorological station at NPP C-GRAV site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	9/16/13	9/6/24	https://doi.org/10.6073/pasta/3c1b7200cd109e71aca9e0e94128b2f4
knb-lter-jrn.210437091.43	Jornada Basin LTER: Wireless meteorological station at NPP C-CALI site: Daily average soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	11/5/13	9/6/24	https://doi.org/10.6073/pasta/030200c1f25b17647ebab49e3a83f19a
knb-lter-jrn.210437090.41	Jornada Basin LTER: Wireless meteorological station at NPP T-WEST site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/30/13	9/7/24	https://doi.org/10.6073/pasta/b9c36a1941bc25b09d8c3f7d195f57c2
knb-lter-jrn.210437089.41	Jornada Basin LTER: Wireless meteorological station at NPP T-TAYL site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/7/13	9/7/24	https://doi.org/10.6073/pasta/d05276a984e2a233c53d4d504572e52a
knb-lter-jrn.210437088.41	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/29/13	8/25/24	https://doi.org/10.6073/pasta/68537b8caaff719c9ceb99390e8bbd91
knb-lter-jrn.210437087.39	Jornada Basin LTER: Wireless meteorological station at NPP P-TOBO site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	5/4/14	9/7/24	https://doi.org/10.6073/pasta/72cf52b872ea620094adeaa7d11554fc
knb-lter-jrn.210437086.41	Jornada Basin LTER: Wireless meteorological station at NPP P-SMAL site: 30-minute soil volumetric water content data: 2017 - ongoing	2024	Duniway, Michael	3/14/17	9/7/24	https://doi.org/10.6073/pasta/58a7727345ea98a993445d558ea8f865

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437085.42	Jornada Basin LTER: Wireless meteorological station at NPP P-COLL site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/26/13	9/7/24	https://doi.org/10.6073/pasta/6344497103101b40c448314a56650702
knb-lter-jrn.210437084.41	Jornada Basin LTER: Wireless meteorological station at NPP M-WELL site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/13/13	9/7/24	https://doi.org/10.6073/pasta/ff3f0ce7a692d9c07cbb4ed174690fcb
knb-lter-jrn.210437083.39	Jornada Basin LTER: Wireless meteorological station at NPP M-RABB site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/12/13	5/10/24	https://doi.org/10.6073/pasta/75a33808cd9c1ad1164836e8cd0a3425
knb-lter-jrn.210437082.40	Jornada Basin LTER: Wireless meteorological station at NPP M-NORT site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/23/13	8/25/24	https://doi.org/10.6073/pasta/f348b985dcae90bec4614b0510a71a7b
knb-lter-jrn.210437081.41	Jornada Basin LTER: Wireless meteorological station at NPP G-SUMM site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/24/13	8/25/24	https://doi.org/10.6073/pasta/d43efdd6be9097175065056f25ab0f46
knb-lter-jrn.210437080.41	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	8/6/13	9/7/24	https://doi.org/10.6073/pasta/c9e5fa128b33631b380c074ca4ecc305
knb-lter-jrn.210437079.43	Jornada Basin LTER: Wireless meteorological station at NPP G-BASN site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	7/25/13	9/7/24	https://doi.org/10.6073/pasta/b20288a4308d0f8fb122ae0437325ec4
knb-lter-jrn.210437078.42	Jornada Basin LTER: Wireless meteorological station at NPP C-SAND site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	11/19/13	8/25/24	https://doi.org/10.6073/pasta/be16f9566ea91e96de36fcf2882d09e4
knb-lter-jrn.210437077.43	Jornada Basin LTER: Wireless meteorological station at NPP C-GRAV site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	9/16/13	8/25/24	https://doi.org/10.6073/pasta/cfb9b536a99544ddbeca3b711a4425a9
knb-lter-jrn.210437076.43	Jornada Basin LTER: Wireless meteorological station at NPP C-CALI site: 30-minute soil volumetric water content data: 2013 - ongoing	2024	Duniway, Michael	11/5/13	8/25/24	https://doi.org/10.6073/pasta/ff7bde8ecbd12c0385bc67dc1deec9d2
knb-lter-jrn.210437075.35	Jornada Basin LTER: Wireless meteorological station at NPP T-WEST site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	7/30/13	9/5/24	https://doi.org/10.6073/pasta/331d7788b496167334992dc53214a942
knb-lter-jrn.210437074.35	Jornada Basin LTER: Wireless meteorological station at NPP T-TAYL site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	8/10/13	9/2/24	https://doi.org/10.6073/pasta/7063702531e25ddd840d0a63bb0734c4
knb-lter-jrn.210437073.36	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	7/30/13	9/6/24	https://doi.org/10.6073/pasta/0448a10770ed06a099262d09c2ff1b91
knb-lter-jrn.210437072.34	Jornada Basin LTER: Wireless meteorological station at NPP P-TOBO site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	9/9/13	9/5/24	https://doi.org/10.6073/pasta/62738c04e8e9413fcc5ffdde5b336ed7
knb-lter-jrn.210437071.35	Jornada Basin LTER: Wireless meteorological station at NPP P-SMAL site: 1-second summary precipitation data: 2017 - ongoing	2024	Anderson, John	3/28/17	8/30/24	https://doi.org/10.6073/pasta/6d8f479dc313ad0b64f86b3233074d62
knb-lter-jrn.210437070.35	Jornada Basin LTER: Wireless meteorological station at NPP P-COLL site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	7/26/13	9/6/24	https://doi.org/10.6073/pasta/e0ab02df58476ac5cc6392352178efb8

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437069.36	Jornada Basin LTER: Wireless meteorological station at NPP M-WELL site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	8/19/13	9/6/24	https://doi.org/10.6073/pasta/c9e794fc303811d09cba7ef55065065f
knb-lter-jrn.210437068.35	Jornada Basin LTER: Wireless meteorological station at NPP M-RABB site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	8/19/13	4/1/24	https://doi.org/10.6073/pasta/c88db1df757e681f61034fd1878a2d24
knb-lter-jrn.210437067.35	Jornada Basin LTER: Wireless meteorological station at NPP M-NORT site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	7/24/13	9/6/24	https://doi.org/10.6073/pasta/eba4665c951725c67614ac428d59acc1
knb-lter-jrn.210437066.37	Jornada Basin LTER: Wireless meteorological station at NPP G-SUMM site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	7/24/13	9/6/24	https://doi.org/10.6073/pasta/3e5448a9a2599506ed11825fc72f5080
knb-lter-jrn.210437065.38	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	8/6/13	9/5/24	https://doi.org/10.6073/pasta/2ace12595fb31d3de919fcabe34c1167
knb-lter-jrn.210437064.39	Jornada Basin LTER: Wireless meteorological station at NPP G-BASN site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	7/26/13	9/6/24	https://doi.org/10.6073/pasta/29c903ecfe8d8a12e50d28f0372bc712
knb-lter-jrn.210437063.37	Jornada Basin LTER: Wireless meteorological station at NPP C-SAND site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	8/2/13	9/6/24	https://doi.org/10.6073/pasta/80194ef481bf90fe7245448424084006
knb-lter-jrn.210437062.36	Jornada Basin LTER: Wireless meteorological station at NPP C-GRAV site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	8/2/13	9/6/24	https://doi.org/10.6073/pasta/f86332bad5b0626305662bec47df862d
knb-lter-jrn.210437061.38	Jornada Basin LTER: Wireless meteorological station at NPP C-CALI site: 1-second summary precipitation data: 2013 - ongoing	2024	Anderson, John	7/24/13	9/6/24	https://doi.org/10.6073/pasta/ad236b97b990eafc3e332906848943e8
knb-lter-jrn.210437060.41	Jornada Basin LTER: Wireless meteorological station at NPP T-WEST site: Daily summary data: 2013 - ongoing	2024	Anderson, John	7/30/13	9/6/24	https://doi.org/10.6073/pasta/73ab9ae730d7a44bed7d288c3308388c
knb-lter-jrn.210437059.42	Jornada Basin LTER: Wireless meteorological station at NPP T-TAYL site: Daily summary data: 2013 - ongoing	2024	Anderson, John	8/7/13	9/6/24	https://doi.org/10.6073/pasta/95dd647710f035439f1498909932d90f
knb-lter-jrn.210437058.41	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: Daily summary data: 2013 - ongoing	2024	Anderson, John	7/30/13	9/6/24	https://doi.org/10.6073/pasta/d4a56ac783302db0c22b4a1349a7bd01
knb-lter-jrn.210437057.42	Jornada Basin LTER: Wireless meteorological station at NPP P-TOBO site: Daily summary data: 2013 - ongoing	2024	Anderson, John	5/1/14	9/6/24	https://doi.org/10.6073/pasta/4981e1b58567a62996fdfe4bbedc4f2e
knb-lter-jrn.210437056.43	Jornada Basin LTER: Wireless meteorological station at NPP P-SMAL site: Daily summary data: 2017 - ongoing	2024	Anderson, John	3/14/17	9/6/24	https://doi.org/10.6073/pasta/b21323a084173e714ab86f3456fdf026
knb-lter-jrn.210437055.42	Jornada Basin LTER: Wireless meteorological station at NPP P-COLL site: Daily summary data: 2013 - ongoing	2024	Anderson, John	7/26/13	9/6/24	https://doi.org/10.6073/pasta/c6efff28ed5d1842154eaf5d8a8b7189
knb-lter-jrn.210437054.42	Jornada Basin LTER: Wireless meteorological station at NPP M-WELL site: Daily summary data: 2013 - ongoing	2024	Anderson, John	8/27/13	9/6/24	https://doi.org/10.6073/pasta/f6c5b758ea0d781a59c64104cb36f444
knb-lter-jrn.210437053.41	Jornada Basin LTER: Wireless meteorological station at NPP M-RABB site: Daily summary data: 2013 - ongoing	2024	Anderson, John	8/25/15	5/9/24	https://doi.org/10.6073/pasta/c8a4d7c5022fed76f2b2b39dce393c23
knb-lter-jrn.210437052.40	Jornada Basin LTER: Wireless meteorological station at NPP M-NORT site: Daily summary data: 2013 - ongoing	2024	Anderson, John	7/23/13	9/6/24	https://doi.org/10.6073/pasta/a44e02a9ac9f54464ed13c820ee06315
knb-lter-jrn.210437051.40	Jornada Basin LTER: Wireless meteorological station at NPP G-SUMM site: Daily summary data: 2013 - ongoing	2024	Anderson, John	7/25/13	9/6/24	https://doi.org/10.6073/pasta/8e1363e7e5db76d248d22a0c4a50e665

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437050.40	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: Daily summary data: 2013 - ongoing	2024	Anderson, John	8/6/13	9/6/24	https://doi.org/10.6073/pasta/2c13ae4eeeede0a2e29fc2660c8e93b5
knb-lter-jrn.210437049.43	Jornada Basin LTER: Wireless meteorological station at NPP G-BASN site: Daily summary data: 2013 - ongoing	2024	Anderson, John	7/26/13	9/6/24	https://doi.org/10.6073/pasta/2d3a0f84c0dbdaa55afdffce6bc2f531
knb-lter-jrn.210437048.42	Jornada Basin LTER: Wireless meteorological station at NPP C-SAND site: Daily summary data: 2013 - ongoing	2024	Anderson, John	11/20/13	9/6/24	https://doi.org/10.6073/pasta/752da0117ebda957f036db37e599fb00
knb-lter-jrn.210437047.43	Jornada Basin LTER: Wireless meteorological station at NPP C-GRAV site: Daily summary data: 2013 - ongoing	2024	Anderson, John	9/16/13	9/6/24	https://doi.org/10.6073/pasta/7671f09abdbabf7bebe4f4cd2773d388
knb-lter-jrn.210437046.45	Jornada Basin LTER: Wireless meteorological station at NPP C-CALI site: Daily summary data: 2013 - ongoing	2024	Anderson, John	11/5/13	9/6/24	https://doi.org/10.6073/pasta/5d7e377e623e0fa15b96dbfa4615239b
knb-lter-jrn.210437045.40	Jornada Basin LTER: Wireless meteorological station at NPP T-WEST site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	7/30/13	9/7/24	https://doi.org/10.6073/pasta/4caf78ae4020fdba81441d0d17864772
knb-lter-jrn.210437044.41	Jornada Basin LTER: Wireless meteorological station at NPP T-TAYL site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	8/7/13	9/7/24	https://doi.org/10.6073/pasta/e7e9f4467c8cac7835f2be16d7d4c138
knb-lter-jrn.210437043.42	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	7/29/13	9/7/24	https://doi.org/10.6073/pasta/1f122c81d5debf506885790347935514
knb-lter-jrn.210437042.40	Jornada Basin LTER: Wireless meteorological station at NPP P-TOBO site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	5/4/14	9/7/24	https://doi.org/10.6073/pasta/61b9040828da469c23ba724ceea8cc41
knb-lter-jrn.210437041.42	Jornada Basin LTER: Wireless meteorological station at NPP P-SMAL site: 1-hour summary data: 2017 - ongoing	2024	Anderson, John	3/14/17	9/7/24	https://doi.org/10.6073/pasta/7c3c1f7e249324d2459ad3505c30cfdf
knb-lter-jrn.210437040.41	Jornada Basin LTER: Wireless meteorological station at NPP P-COLL site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	7/26/13	9/7/24	https://doi.org/10.6073/pasta/8b54df401b7a248ae911183324798561
knb-lter-jrn.210437039.39	Jornada Basin LTER: Wireless meteorological station at NPP M-WELL site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	8/27/13	9/7/24	https://doi.org/10.6073/pasta/08ed8ba9e3d4e64e35f3ca105b0f5d49
knb-lter-jrn.210437038.40	Jornada Basin LTER: Wireless meteorological station at NPP M-RABB site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	8/30/15	5/10/24	https://doi.org/10.6073/pasta/44a01f9bee594057f4903a60d6985587
knb-lter-jrn.210437037.42	Jornada Basin LTER: Wireless meteorological station at NPP M-NORT site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	7/23/13	9/7/24	https://doi.org/10.6073/pasta/4afd877e225766892daa1c68fec73c60
knb-lter-jrn.210437036.42	Jornada Basin LTER: Wireless meteorological station at NPP G-SUMM site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	7/24/13	8/25/24	https://doi.org/10.6073/pasta/d1b100cd97befe2505c7b774890e4987
knb-lter-jrn.210437035.40	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	8/6/13	9/7/24	https://doi.org/10.6073/pasta/ffaa8758c68d696a10143ef12fabaa83
knb-lter-jrn.210437034.43	Jornada Basin LTER: Wireless meteorological station at NPP G-BASN site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	7/26/13	9/7/24	https://doi.org/10.6073/pasta/ad688af736de63c1817d5b09bae4b9d2

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437033.43	Jornada Basin LTER: Wireless meteorological station at NPP C-SAND site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	11/19/13	9/7/24	https://doi.org/10.6073/pasta/78aaed2dc66ea198db8f99d9fa8786f1
knb-lter-jrn.210437032.43	Jornada Basin LTER: Wireless meteorological station at NPP C-GRAV site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	9/16/13	9/7/24	https://doi.org/10.6073/pasta/aad2a48f5402c7b1dc2800e45f9f59c0
knb-lter-jrn.210437031.42	Jornada Basin LTER: Wireless meteorological station at NPP C-CALI site: 1-hour summary data: 2013 - ongoing	2024	Anderson, John	11/5/13	9/7/24	https://doi.org/10.6073/pasta/54bf432a1d0eff13cccf01dc9354c3b5
knb-lter-jrn.210437030.40	Jornada Basin LTER: Wireless meteorological station at NPP T-WEST site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	7/30/13	9/7/24	https://doi.org/10.6073/pasta/10c2a925c5e7afd15db050a7c89e8d9d
knb-lter-jrn.210437029.40	Jornada Basin LTER: Wireless meteorological station at NPP T-TAYL site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	8/7/13	9/7/24	https://doi.org/10.6073/pasta/4f1a9391b55c846b74fa2e45d9a747c1
knb-lter-jrn.210437028.40	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	7/29/13	9/7/24	https://doi.org/10.6073/pasta/a356df2191c1ce7d6f32b29790f84cae
knb-lter-jrn.210437027.42	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	5/4/14	9/7/24	https://doi.org/10.6073/pasta/9c1b4f2b89db04f6dfc742b8b7019c6b
knb-lter-jrn.210437026.41	Jornada Basin LTER: Wireless meteorological station at NPP P-SMAL site: 30-minute summary data: 2017 - ongoing	2024	Anderson, John	3/14/17	9/7/24	https://doi.org/10.6073/pasta/42e504bfe8247959099c8da4d9608bfa
knb-lter-jrn.210437025.41	Jornada Basin LTER: Wireless meteorological station at NPP P-COLL site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	8/21/13	9/7/24	https://doi.org/10.6073/pasta/b830da2f775dc6a071368f84caa87431
knb-lter-jrn.210437024.41	Jornada Basin LTER: Wireless meteorological station at NPP M-WELL site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	8/27/13	8/25/24	https://doi.org/10.6073/pasta/e495be668714b0fea432d10867df2df7
knb-lter-jrn.210437023.41	Jornada Basin LTER: Wireless meteorological station at NPP M-RABB site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	8/30/15	5/10/24	https://doi.org/10.6073/pasta/cd33eb9e87d3571d99a5f243099275da
knb-lter-jrn.210437022.41	Jornada Basin LTER: Wireless meteorological station at NPP M-NORT site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	7/23/13	9/7/24	https://doi.org/10.6073/pasta/e3d6aef785d5193740f3dc020bd79319
knb-lter-jrn.210437021.42	Jornada Basin LTER: Wireless meteorological station at NPP G-SUMM site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	7/24/13	9/7/24	https://doi.org/10.6073/pasta/1b9ad235e1697b6a768ad030b0aeb27c
knb-lter-jrn.210437020.41	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	8/6/13	9/7/24	https://doi.org/10.6073/pasta/baef6716b29cbbb426c4d6997a244d7a
knb-lter-jrn.210437019.42	Jornada Basin LTER: Wireless meteorological station at NPP G-BASN site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	7/26/13	9/7/24	https://doi.org/10.6073/pasta/21feb10367fb44bd1fda83b668198c92
knb-lter-jrn.210437018.40	Jornada Basin LTER: Wireless meteorological station at NPP C-SAND site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	11/19/13	8/25/24	https://doi.org/10.6073/pasta/5e5aec128ea9bbd6d459f237f1a7484e

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437017.43	Jornada Basin LTER: Wireless meteorological station at NPP C-GRAV site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	9/16/13	9/7/24	https://doi.org/10.6073/pasta/f521194c37d2d42b5f571f12f7ae5fd2
knb-lter-jrn.210437016.43	Jornada Basin LTER: Wireless meteorological station at NPP C-CALI site: 30-minute summary data: 2013 - ongoing	2024	Anderson, John	11/5/13	9/7/24	https://doi.org/10.6073/pasta/fdd4b03995b6fc8775dfad88275f12f6
knb-lter-jrn.210437015.41	Jornada Basin LTER: Wireless meteorological station at NPP T-WEST site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	7/30/13	9/7/24	https://doi.org/10.6073/pasta/59296cdb37ca1a734733f3a1e7ed06f6
knb-lter-jrn.210437014.41	Jornada Basin LTER: Wireless meteorological station at NPP T-TAYL site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	8/7/13	9/7/24	https://doi.org/10.6073/pasta/d169aefc91413b36b36292b192410e11
knb-lter-jrn.210437013.40	Jornada Basin LTER: Wireless meteorological station at NPP T-EAST site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	7/29/13	9/7/24	https://doi.org/10.6073/pasta/a2291276ddd42e9b927c12368ebaa27f
knb-lter-jrn.210437012.41	Jornada Basin LTER: Wireless meteorological station at NPP P-TOBO site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	5/4/14	8/25/24	https://doi.org/10.6073/pasta/2872b9a487e3c909bc9cdc42f536ec21
knb-lter-jrn.210437011.43	Jornada Basin LTER: Wireless meteorological station at NPP P-SMAL site: 5-minute summary wind and air temperature data: 2017 - ongoing	2024	Anderson, John	3/14/17	8/25/24	https://doi.org/10.6073/pasta/e70b5feeb29c9b51d7ac0a216b17d203
knb-lter-jrn.210437010.41	Jornada Basin LTER: Wireless meteorological station at NPP P-COLL site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	8/21/13	8/25/24	https://doi.org/10.6073/pasta/738b2a594180b4a02988f2b16748a272
knb-lter-jrn.210437009.40	Jornada Basin LTER: Wireless meteorological station at NPP M-WELL site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	8/27/13	5/10/24	https://doi.org/10.6073/pasta/878ec05d6891b081177b457194632029
knb-lter-jrn.210437008.39	Jornada Basin LTER: Wireless meteorological station at NPP M-RABB site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	8/30/15	5/10/24	https://doi.org/10.6073/pasta/fc4c4f89a94aba7a9c9ec5b432e9d388
knb-lter-jrn.210437007.42	Jornada Basin LTER: Wireless meteorological station at NPP M-NORT site: 5-minute summary air temperature data: 2013 - ongoing	2024	Anderson, John	7/23/13	9/7/24	https://doi.org/10.6073/pasta/3208a7ab085235b805d6995da79e25d6
knb-lter-jrn.210437006.42	Jornada Basin LTER: Wireless meteorological station at NPP G-SUMM site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	7/24/13	8/25/24	https://doi.org/10.6073/pasta/1b5835322eb1bc66db1d9a1352c64bb8
knb-lter-jrn.210437005.40	Jornada Basin LTER: Wireless meteorological station at NPP G-IBPE site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	8/6/13	8/25/24	https://doi.org/10.6073/pasta/7ade81d78d828598046ac8708c2f0bae
knb-lter-jrn.210437004.43	Jornada Basin LTER: Wireless meteorological station at NPP G-BASN site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	7/25/13	9/7/24	https://doi.org/10.6073/pasta/b8aeb5099e54a820d118ad2fbce16c91
knb-lter-jrn.210437003.43	Jornada Basin LTER: Wireless meteorological station at NPP C-SAND site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	11/19/13	9/7/24	https://doi.org/10.6073/pasta/1129f3a3181a6913cacf687643b163fb
knb-lter-jrn.210437002.43	Jornada Basin LTER: Wireless meteorological station at NPP C-GRAV site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	9/16/13	8/25/24	https://doi.org/10.6073/pasta/34500d0c66274a9cd987a35ca8f4bec8

2024 JRN New and Updated Data Sets

EDI package ID	Title	Date published	Authors	Begin date	End date	DOI
knb-lter-jrn.210437001.41	Jornada Basin LTER: Wireless meteorological station at NPP C-CALI site: 5-minute summary wind and air temperature data: 2013 - ongoing	2024	Anderson, John	11/5/13	8/25/24	https://doi.org/10.6073/pasta/e48043a1dff9b86f6255ed1bc7a2a63e
knb-lter-jrn.210413003.2	Annual precipitation and photo-derived vegetation and litter cover (2013-2021) used for analysis in the manuscript ‚ÄúGrowing grasses in the desert: Multi-scale Interactions and State Change Reversal in Drylands‚Äù	2024	Peters, Debra C;Burruss, Nathan D.;Anderson, John;Heintzman, Lucas	1/1/13	12/31/21	https://doi.org/10.6073/pasta/9d1a709f67c02f56189f2a597f4b0221
knb-lter-jrn.210380001.746	Monthly precipitation data from a network of standard gauges at the Jornada Experimental Range (Jornada Basin LTER) in southern New Mexico, January 1916 - ongoing	2024	Thatcher, David;Bestelmeyer, Brandon T	1/1/15	8/1/24	https://doi.org/10.6073/pasta/08d3c2f162d1eedf952b848e1fb7c64a
knb-lter-jrn.210262005.11	Total Annual Aboveground Net Primary Productivity across grassland-shrubland ecotones at 3 sites in the Jornada Basin, 2006-ongoing	2024	Bestelmeyer, Brandon T;Schooley, Robert	5/19/06	10/24/23	https://doi.org/10.6073/pasta/88a29965fb635be5a79a89b4e1416c00
knb-lter-jrn.210262004.95	Annual Aboveground Net Primary Productivity by plant functional groups across grassland-shrubland ecotones at 3 sites in the Jornada Basin, 2006-ongoing	2024	Bestelmeyer, Brandon T;Schooley, Robert	5/19/06	10/24/23	https://doi.org/10.6073/pasta/3fcf0fee94238b6f1c1673636ed6e90f
knb-lter-jrn.210262001.11	Spring and Fall plant cover across grassland-shrubland ecotones at 3 sites in the Jornada Basin, 2005-ongoing	2024	Bestelmeyer, Brandon T;Schooley, Robert	6/1/05	10/24/23	https://doi.org/10.6073/pasta/13a6e606f3173f5b39cca500ad65fb97
knb-lter-jrn.210126001.131	Jornada Basin LTER Weather Station Daily summary climate data	2024	Anderson, John	3/1/83	9/8/24	https://doi.org/10.6073/pasta/a1fd79442c6ac4433a1844df91888a41
knb-lter-jrn.200050001.1	Optimizing sampling across methods improves the power of ecological monitoring data	2024	E;Webb, Nick;Van Zee, Justin;Courtright, Ericha M;Billing, Ben;Duniway, Michael;Kachergis, Emily;Moriasi, Daniel;Morra, Brian;Nafus, Aleta M;Newingham, Beth A;Scott, Drew A;Toledo, David	7/1/15	7/31/23	https://doi.org/10.6073/pasta/b8b8abc0471c826c755788c3f24a2c1b
knb-lter-jrn.103.1	Gridded 1-hectare estimates of shrub community structure at the Jornada Basin LTER site derived from NAIP (2011) and LiDAR (2019) data	2023	Roberts, Trevor H;Hanan, Niall P	1/1/11	12/31/19	https://doi.org/10.6073/pasta/49bec3ac2917e494c5de4b19130e703b