

Joshua Puyear

Global Ecology • Environmental Education • Urban Ecology

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EDUCATION

Bachelor of Science in Restoration Ecology | *Colorado State University, Fort Collins, CO* Expected May, 2025

Minor in Spanish | *Colorado State University, Fort Collins, CO*

Expected May, 2025

Ecuador: Comparative Ecology and Conservation | *School for International Training, Ecuador*

Dec. 2023

EXPERIENCE

Honors Thesis Project: Campbell Creek Wetlands | *Livermore, CO*

Jun. - Nov., 2024

3 Credit hours

- Recruited enthusiastic undergraduate volunteers by announcing my project to lecture classes and club
- Explained line-point intercept and Daubenmire methods to recruits to enable future data collection
- Observed 415 data points to assess bare ground or litter substrate coverage across eight plots
- Drove and biked over 6 miles of deeply rutted ranch roads for an hour to arrive at the site
- Taught forensic grass identification strategies to student recruits
- Mapped plot locations with ESRI ArcGIS Pro, syncing maps with Avenza to specify plot locations
- Introduced photopoints to protocol, recommended surveying software to halve plot completion time
- Designed artificial wetland index with Corps of Engineers indicator values to visualize wetland extent
- Synthesized conclusions from previous monitoring reports in discussion to predict abundant species
- Presented a powerpoint to ranch manager to spur discussions about fence management

Macroinvertebrate Lab Technician | *Preston Lab, Colorado State University*

Oct. 2024 - Present

- Identifies key characteristics of macroinvertebrate orders with dissecting microscope
- Adjusts amount of macroinvertebrate sample viewed in dish to expedite thorough data collection
- Maintains clean work station by wiping down microscope, sorting tweezers, and placing samples in labeled storage areas
- Coordinates hours to standardize order identification methodology with lab partners

Environmental Educator | *Environmental Learning Center, Fort Collins, CO*

May - Aug., 2024

- Trained five counselors to create biomimicry-themed crafts to illustrate diverse species adaptations
- Designed, tailored weeklong ecology [activity plan](#) to 2nd, 4th, and 5th graders to boost engagement
- Guided students aged 6-12 on bird and plant walks to forge lifelong bonds with nature
- Explained unique wildlife and landscape features in a riparian plains habitat with historical anecdotes to facilitate a sense of history, care, and belonging in nature for students
- Administered first aid for minor cuts and bruises
- Integrated compost, watered, seeded, planted, and devised natural pesticides for a 300 square foot community vegetable and native plant garden
- Tailored a weeklong ecology activity plan to second, fourth, and fifth graders, boosting engagement
- Guided willow stake harvesting and cultivation for students
- Reinforced existing compost bins for five more years of heavy use

Subalpine Forest Field Technician | *Colorado Forest Restoration Institute, Lake City, CO*

Jun. - Aug., 2023

- Navigated over 500 miles of 4WD roads to reach nearly 100 plots throughout western Colorado
- Collected snowshoe hare scat to predicting lynx presence, across the Western Slope
- Recorded data on excel with a Juniper Systems Allegro device

- Cataloged spruce beetle infestations on live tree species and decomposition level of dead trees with forestry data techniques: DBH, canopy cover, and rangefinders to estimate growth over time
- Cooperated with the same crew of three to halve plot completion time from 6hrs to 3hrs

EXPERIENCE (CONTINUED)

Field Tech Assistant for Forestry Graduate Student | *Colorado Forest Restoration Institute* May, 2023

- Recovered 26 tree cores with an increment borer to estimate *Pinus ponderosa* response to fire stresses
- Estimated tree canopy growth with densiometer to compare burned areas with unburned areas
- Navigated burned area debris on foot to transport fragile scientific equipment

Front Range Field Technician | *Colorado Forest Restoration Institute* May - Aug., 2022

- Found trees in the plot with a forester's prism, measuring diameter at breast height with logger's tape
- Pressed plants to identify unknown montane species with *Flora of Colorado* key (Ackerfield)
- Deliberated opinions on visual fuel load assessment to calibrate with field partners
- Built camaraderie with a four crew members team over 10-hour days

Plant Biology Research Assistant | *USDA Agricultural Research Services, Fort Collins, CO*

Jan.-May 2022, Sept 2022.-May 2023

- Ground and weighed soil and plant samples for carbon and nitrogen analysis in special ovens
- Conserved corn root samples by washing soil cores in a kitchen sink to assess specific root length
- Weighed .05g soil samples to be analyzed for microbial DNA across carbon and nitrogen levels
- Cleaned images of specific root length scans with Microsoft Paint, compiling data on Excel

ACADEMIC INVOLVEMENT

Environmental Research Methods and Ethics | *School for International Training, Ecuador* Sept. - Dec., 2023

3 credit hours

- Evaluated Simpson, Shannon, Sorenson-Jaccard, and Morisita's overlap diversity indices
- Evaluated quadrat size for adequate species richness assessment with a species rarefaction curve in R
- Inventoried bird species while taking vocal bird recordings to evaluate distinguishing characteristics
- Noted bird behavior for four hours near Yasuní National Park in Ecuador as rapid site evaluation
- Recorded visual aquatic species diversity observations in a tropical upwelling marine ecosystem
- Presented on three plant and animal species in Spanish to stimulate conservation interest
- Interviewed four pedestrians, contributing to a 6-page public health report about air pollution in Quito
- Volunteered at an ecological farm cooperative in Minga to provide tourism revenue

SIT Independent researcher | *Chakras and Cacao Monoculture Leaf Litter, Tena, Ecuador* Nov. - Dec., 2023

4 credit hours

- Graphed invertebrate functional group diversity across three sites with Excel to visualize taxonomic differences in organic and conventional plots with and without chickens
- Analyzed species diversity indices ggplot2 with R to draw data-based conclusions
- Conducted extensive bibliographical search to hypothesize agroecosystem invertebrate diversity
- Used aspirator, Berlese funnels, iNaturalist, digital microscope to find and ID common insect orders
- Achieved American Council on the Teaching of Foreign Languages Advanced Low Spanish certification
- Presented my research to students and faculty at a symposium

Society for Ecological Restoration Student Guild Member | *Colorado State University, Fort Collins, CO*

- Networked with ecological restoration professionals, comparing management across ecosystems
- Drilled holes into tree cross-sections, ensuring heterogeneity for a diverse array of bee species
- Removed Russian olive (*Elaeagnus angustifolia*) at university property to make willow habitat

Weed Management Plan for North Shields Ponds - Ecology and Management of Weeds | *Colorado State University, Fort Collins, CO*

3 credit hours

- Designed map of priority weed zones on ArcGIS Field Maps to predict management costs
- Calculated a theoretical budget, factoring in labor, materials, and greenhouse space
- Interviewed Fort Collins Natural Areas manager to evaluate treatment option pros and cons
- Synthesized lists of key bird, mammal and herptile species, relating weed prevalence to their habitats

Xi Sigma Pi- Member | *Colorado State University, Fort Collins, CO*

Nov., 2024

- Attended lectures about cutting edge management and policy practices in Colorado State University
- Built community and fellowship with natural resource majors and professors at topic lectures

VOLUNTEER EXPERIENCE

Crew Lead and Volunteer for Wildlands Restoration Volunteers (WRV) | *Colorado* Sept., 2021 - Present

Hours volunteered: 270

- Taught crews ergonomic pick mattock, McLeod, and rake use for seeding, raking, and tread cutting
- Constructed rock and mono walls to help build 3000 feet of new 24" Elkhorn Creek Trail
- Instructed six volunteers to select rocks for 25 new drainage structures on Rawah Wilderness trail
- Assisted with camp construction, cooking, and breakdown in Never Summer Wilderness
- Hauled 5000 lbs of rock, gravel, and mineral soil from four 25ft² borrow pits to build a 30-ft turnpike
- Hauled over 3000 lbs of gravel to protect eroding Pawnee Buttes trail with a pulley system
- Supervised crew member safety during transportation of 300-lb rocks for trail construction with rock webbing, clearing walking paths to the installation site
- Ordered crew to take shelter when a thunderstorm formed, protecting a crew of ten from lightning
- Directed a ten-person crew to decommission 1 mile of USFS road, reseeding a subalpine meadow
- Scored and debarked subalpine fir trees to construct a bridge with five-person crew
- Coordinated carpooling with other volunteers to reduce impact while driving to restoration sites
- Trained instructor in broadcast seeding, erosion matting, willow stakes restoration strategies
- Brainstormed strategies to include marginalized people into ecological restoration
- Instructed volunteers to build 100 feet of wildlife-friendly barbed wire fences
- Attended course in crew leading to evaluate native seed identification, selection, and processing
- Closed 1000 ft of social trail in Brainard Lake, Colorado to protect high-elevation wetland

Lake County and Cook County, IL Forest Preserves

2021 - Present

Hours volunteered: 60

- Collected cow parsnip and bottlebrush grass seeds in woodland ecosystems for future restoration
- Applied herbicide treatments to cut stumps, preventing reemergence
- Selected and removed invasive buckthorn from oak woodlands to conserve endangered habitat
- Monitored winter burn piles as a crew member to ensure proper nutrient cycling
- Lopped out an acre of invasive teasel and clover from prairie ecosystem to make burn piles

Eagle Scout | *Deerfield, IL*

Earned Sept., 2019

- Contacted sponsors within my troop and community to secure concrete, rebar, and tools
- Designed, edited, revised, and presented my project plan with a story to a board of review
- Detailed activities with photographs and written reports, reflecting on successes and challenges
- Assembled a body of inexperienced volunteers, instructing them on objectives and safe tool handling