**CNAS Hiring Plan (Due April 29, 2022)**

**College of Natural and Agricultural Sciences**

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| **Department/Program Name:** | Botany and Plant Sciences |

CNAS needs to hire faculty to fulfill our mission of research, teaching and service. To prepare our College hiring plan in parallel with Campus-wide cluster hires, we are identifying research areas and addressing teaching needs over the next five years. (One response per department/program).

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| ***What are the most critical research areas for CNAS and your department/program?*** |
| **Research Areas [Abbreviations]**  Ecology, Evolution, and Ecosystems [EEE]  Plant Genetics and Breeding [PGB]  Biochemistry/Plant Physiology [BPP]  Plant Cell, Molecular and Developmental Biology [PCMDB]  Agricultural and Translational Biology [ATB]  Plant Data Science [PDS]  **Positions (Immediately Critical for 2022-23)**   1. **Community Ecology (Jeff Diez replacement) [EEE, PDS]**   We seek a plant ecologist to replace Jeff Diez, an Assistant Professor who left UCR for the University of Oregon in 2020. Community ecology is a central position in ecology that focuses on the interactions among species and mechanisms of coexistence in ecological communities. Community ecology is an increasingly important area due to its relevance and applicability to solving pressing natural resource issues, particularly related to invasion biology, biodiversity, and conservation ecology. Candidates working to advance understanding of species distribution, community assembly, ecosystem functional consequences of community structure, and evolutionary responses of species and communities to perturbation will be valued. A community ecologist can interact with programs in conservation biology, invasive species ecology, ecological genomics, ecosystem and landscape ecology, and/or theoretical and computational ecology. We seek candidates who integrate empirical with statistical, phylogenetic, or modeling approaches, and who can apply advanced techniques such as, but not limited to, GIS/remote sensing, niche modeling, ecophysiological measurements, or stable isotopes. This is a tenure-track, academic year (9-month) appointment with a joint appointment in the Agricultural Experiment Station with an expectation to develop a nationally competitive program and obtain extramural grant funds. The successful candidate will supervise graduate students, develop a graduate-level community ecology course, and participate in the life science undergraduate teaching program. Due to recent and imminent departures of two plant ecologists, this position is urgently needed to cover teaching needs in the Plant Biology undergraduate program, including BPSC 146 (Plant Ecology) and BPSC 104 (Foundations of Plant Biology), our gateway course. Potential to leverage funding: The successful applicant will be able to leverage funding from basic science sources such as NSF, as well as applied sources such as USDA, DOE, EPA, NPS.   1. **Genomics of Resilience to Climate Change [EEE, PGB, ATB]**   Climate change is causing increases in temperature and carbon dioxide (CO2) levels and an increased frequency of extreme weather events such as drought and flooding, thus threatening both agricultural productivity and natural ecosystems. We seek a candidate who will use the tools of genomics to understand climate change impacts on plants in both agricultural and natural systems. Specifically, the candidate should work to understand genomic contexts that allow resistance or resilience to extreme climate events. Research in this area is essential to develop a comprehensive understanding of the contrasting genomic compositions that are the basis for responses to the environment. The proposed position would form an important bridge between researchers working within the agricultural mission of the Agricultural Experiment Station and researchers working with advanced concepts in Genetics, Genomics and Bioinformatics. The successful applicant will teach Graduate Plant Physiology, will contribute to graduate and undergraduate bioinformatics courses such as BIOL 119 and GEN 220, and develop a graduate seminar in Plant Physiology. Potential to leverage funding: The successful applicant will be able to leverage funding from basic science sources such as NSF, as well as applied sources such as USDA, and commodity boards such as the California Avocado Commission, Citrus Research Board and California Olive Committee. | |

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| ***What undergraduate and graduate courses would these faculty members teach?*** |
| **Position 1, Community Ecology:**  *Undergraduate courses*:  Plant Ecology (BPSC146), Senior Seminar (BPSC193), Foundations of Plant Biology (BPSC104), Introductory Biology (5C), lower division non-majors courses (BPSC11, BPSC21, BPSC31)  *Graduate courses*:  Foundations of Ecology (EEOB211), Species Distribution (BPSC244), Advanced Plant Ecology (BPSC245), Plant Biology Core (BPSC200A-B)   1. **Position 2, Genomics of Resilience to Climate Change:**   *Undergraduate courses*:  Introductory Biology (BIOL5A), Dynamic Genome (BIOL20), Foundations of Plant Biology (BPSC104), Bioinformatics (BIOL119), Introductory Genetics (BIOL102), Molecular Biology (BIOL107A), Genes, Selection, and Populations (BPSC150), lower division non-majors courses (BPSC11, BPSC21)  *Graduate courses*:  Advanced Plant Physiology (BPSC236), Plant Genome (BPSC231), Statistical Genomics (BPSC234), Plant Biology Core (BPSC200A-B), Advanced Genetic Analysis (GEN203), Computational Analysis of High Throughput Biological Data (GEN220), Advances in Bioinformatics and Genomics (GEN241) |

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| ***How will these faculty synergize with other units, and/or fulfill other needs outside of your department/program?*** |
| Both positions will collaborate with faculty from other departments and colleges by forming research teams, having secondary appointments in other departments, team teaching, etc. These departments and units could include, Entomology, Environmental Sciences, Evolution, Ecology, and Organismal Biology, Microbiology and Plant Pathology, Statistics, Computer Science and Engineering, Center for Conservation Biology, Center for Geospatial Sciences, EDGE Institute, CAFE Institute, and the interdepartmental graduate programs GGB and CMDB. |

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| ***What types of space/facilities would be needed? Are lab and office space available?*** |
| All positions will require standard wet lab and office space. Space in Batchelor Hall is expected to be available after renovation is completed. Temporary space will likely be needed until then. |

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| ***Are there significant instrumentation/equipment needs to support this hire?  Would shared facilities be required/recommended?*** |
| *(1)* ***In greatest need****: Additional greenhouse space for teaching and research, growth chambers*, *data science facilities/laboratory to support computation-based teaching (i.e., in bioinformatics, geographic information systems, statistics)*.  (2) **Current and required for future research**: IIGB core facilities (Genomics, proteomics, microscopy, metabolomics), CCB and EDGE Stable Isotope laboratories, High-Performance Computing Facility, equipment in Environmental Sciences such as the Autoanalyzer and ICP*,* field space in AgOps, space at RECs, tissue culture facilities, wet lab space, natural reserves. |

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| ***What agencies would these faculty target for funding to support their research program?*** |
| NSF, NIH, USDA/NIFA, DOE, EPA, DOD, NASA, NOAA, USAID, International Grant Agencies, State, Regional and Local Agencies, Private Foundations such as the Bill and Melinda Gates Foundation, and Commodity Boards. |

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| ***How will your department/program contribute to the initial complement of the hires?*** |
| We will contribute funds to the initial complement of recruits. We anticipate the amount we contribute will be based on the current ratio of F&A allocation between CNAS and departments and will depend on the size of the required IC package and the extent of renovations needed. |

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| ***Describe your plans to promote diversity, as requested by the Provost.*** |
| BPSC has a good track record in the area of faculty diversity. Our current faculty composition is 35% women and ~11% underrepresented minorities. Since 2015, 50% of our faculty hires were women and 21% were underrepresented minorities (URM). The Plant Biology graduate program has undergone a substantial increase in underrepresented minority students over the past three years, currently comprising ~20% URM students. BPSC faculty are also committed to mentoring diverse undergraduate students, including through our NSF Research Experiences for Undergraduates (REU) program, which is in its 19th year, and the more recent USPARC program, which has a goal or recruiting URM students into Agricultural careers. Faculty also mentor undergraduate students in a variety of other UCR summer research programs that are aimed at training URM students. Our goal is to increase the diversity of our faculty ranks so that we better reflect the diversity our graduate and undergraduate students. To that end, we have begun to explore the candidate pool in the UC President’s/Chancellor’s postdoctoral program to target candidates in underrepresented groups. Faculty searches will be broadly advertised, using campus best practices. We also recently obtained a UCOP Advancing Faculty Diversity grant to develop a mentoring program designed to improve faculty retention, especially focused on URM faculty. |

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| ***Describe the status of the learning outcomes assessment, as requested by the Provost.*** |
| The Plant Biology Annual Program-Level Assessment has been completed annually and we have generally been commended by Omar Safie for an exemplary job. Assessment for 2021-2022 is ongoing. We are also discussing revisions/updates to our undergraduate program in response to our recent external UG program review. |