Chapter 2: Some ROW Collaborative History
Target PG&E Goals

• Leverage Innovation and Forward-thinking Technology (LIFT)

• Integrated Vegetation Management (IVM)

• Community Investment

• Partnerships
ROW Research To Date – Two Way Communication, Stewardship, and Technology Development

“Right of Way Research”

- Large Animal Movement
- Pollinator Movement
- Habitat Creation
- Ecosystem "Succession"
- Climate "Alteration"
- Vegetation Management

Camera Trapping and Algorithm Development - CEI

- Pollinator Movement - Biology
- Sudden Oak Death Transmission - Biology
- Biomass Estimation - Geography
- Landscape Changes - Geography
- Microclimate: Station Development – Engineering Data Analysis / Interpretation – CEI
Nature!Tech

How innovating with technology targets PG&E goals

1. Leverage innovation and forward-thinking technology (LIFT)
2. Inform best management practices for IVM
3. Train the next generation of professionals
4. Leverage existing research
Nature!Tech Observation Network

- Remote imagery (LiDAR, Hyperspectral, etc.)
- Ground-based sensors
- Environmental monitoring plots
How Does Vegetation Respond to IVM Over Time?

Challenge

- Poor LiDAR estimates of biomass in California woodlands

New Technology

- LiDAR tools for estimating vegetation biomass

IVM and Community Benefits

- Long-term remote monitoring of stable low-growing vegetation
- Regional estimates for carbon trading


How Do Mammals Respond to IVM?

Challenge

- Analysis time for monitoring wildlife with cameras

New Technology

- Automated image recognition software

IVM and Community Benefits

- Update BMPs for enhancing diversity
- Use utility corridors to enhance regional habitat connections


Challenge

- Pollinator declines and effects on agriculture and natural systems

New Technology

- Relating remote sensing to plant and insect diversity

IVM and Community Benefits

- Updated BMPs for enhancing diversity
- Management to enhance regional agriculture and natural systems

Native bees are more abundant after IVM
The managed ROW was visited more often by bees (including honeybees) than either the open unmanaged meadow or the enclosed oak woodland. The open meadow was visited more often by native bees. (Different than other sites!)
How can IVM diversify climate and habitat for species?

Challenge

• Changes in species diversity with climate and ROW

New Technology

• Low-cost microclimate sensors

IVM and Community Benefits

• Updated BMPs for enhancing diversity
• Wine industry and agricultural applications


How can IVM affect spread of disease?

Challenge

- Sudden Oak Death, fuel loading, woodland change

New Technology

- Microclimate sensors

IVM and Community Benefits

- Updated BMPs for preventing SOD spread

- Disease control in natural systems

SOD transmission declines in sunny ROWs

Wininger, K. (2016). *Effects of insect herbivory on susceptibility of bay laurel to the pathogen that causes Sudden Oak Death*, Master’s Degree Research Proposal, Sonoma State University.

Wininger, K., and N. Rank (2015). *This tree’s not big enough for the both of us: Symptom’s of Sudden Oak Death on California Bay Laurel are lower when insect herbivores are abundant*, poster presentation at the Northern California Botanists Symposium.
N!Tech Conference

Get a behind-the-scenes look at how new technologies—such as drones, virtual reality, and big data—are revolutionizing both the way we look at the environment and how we train the workforce of tomorrow.

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