

## NORTHWEST REFORESTATION WORKSHOP SUMMARY: CHOOSING PLANT MATERIALS SUITED TO CURRENT AND FUTURE CLIMATES



 Northwest Climate Hub  
U.S. DEPARTMENT OF AGRICULTURE

### MAIN THEMES OVERALL

1. Seed availability
2. Logistics around seed availability
3. Centralized information (data, contacts, tools, protocols, etc.)
4. Support from government
5. Acting now is critical
6. Main players that can help bring people together
  - a. State governments
  - b. NGOs
  - c. Conservation districts

### SUMMARY OF SMALL GROUP DISCUSSIONS

1. **What do you see as opportunities associated with assisted migration (AM)?**
  - a. Forest resilience
    - i. Better for future forests
      1. Places that may lose forests in the future without help could continue to have them

- ii. Regain resilience in areas that have become poorly adapted for their current climate
- iii. Reinvigorate forest genetics
- iv. Climate adapted populations of trees or plants
- v. Forest fires are an opportunity to start AM
- b. Climate change and the public
  - i. Provide people with a feeling of being able to do something about climate change
  - ii. Educate people about the future of ecosystems when helping people use AM
  - iii. Small landowners are interested
- c. Collaboration between agencies
  - i. Seed sharing
  - ii. Data sharing
- d. Funding
  - i. REPLANT Act

**2. What do you see as the major barriers to assisted migration?**

- a. Logistics
  - i. Plant materials
    - 1. Availability of plants and knowledge of where plant materials are
      - a. Small landowners
      - b. Other orgs
    - 2. Pricing
    - 3. Coordinating sales and shipping
    - 4. Not introducing novel pathogens or soil microbes
    - 5. Manpower to deal with the logistics of
    - 6. Networks for collection
  - ii. Seed zones
    - 1. Keeping current with seed zones as the climate changes
    - 2. Different customers will need seeds from different seed zones - this is more challenging mentally and physically than just growing the same seed zone for all customers
    - 3. The seedlot selection tool may identify a spot, but how to find nurseries associated with that spot
    - 4. High elevation species are harder to obtain
    - 5. Species from a specific elevation band can be hard to obtain
    - 6. In the NW, we can get seeds from Oregon and California, but the further south you go, the harder it can get to find seed
  - iii. Transferring seed between countries
- b. Climate Change
  - i. Dealing with extreme events that are not representative of new climate conditions that will kill seedlings and lower success
  - ii. Getting plants through first year after planting
- c. Policy/regulations/guidelines
  - i. How broadly can you do assisted migration and not cross regulatory agencies?
  - ii. There are no consistent guidelines across agencies, no clear guidelines within certain agencies
  - iii. Minimal standards for seed collection, testing, and storage
  - iv. Local governments care more about what grows well now

- d. Funding
    - i. Some programs won't pay for non-native species
    - ii. Transporting, cleaning, storing seeds
    - iii. Small forest landowners cannot get seeds in the amounts they need for smaller lots
    - iv. Funding for planning enough in advance can be hard to find, need to plan on a 5-year cycle and funding sometimes happens in a 2-year cycle
  - e. Land access
  - f. Skepticism still exists
    - i. "Leave the natural world as it is"
    - ii. Could be hard to convince people who will only have one harvest in their lifetime
  - g. Person-power/capacity
    - i. Vegetation control
  - h. Data
  - i. Mills – will they change in response to new tree species?
  - j. What to do in the case of failures?
    - i. Who takes on the burden? Landowners often can't cover the cost
- 3. How do you think those barriers can be overcome?**
- a. Education/Information sharing/communication
    - i. Co-op, hub, or seed collective
      - 1. Centralized database for seed sources, nurseries, who to contact for what resources
      - 2. Seed collection and storage guidelines
      - 3. Formalized protocols
    - ii. Demonstration plantings
      - 1. Near campsites, perhaps
    - iii. Reforestation case studies online and available to be shared widely
      - 1. Learn from historic successes and failures
    - iv. Infographics
    - v. In-forest/public land signage
    - vi. Make resources available in multiple languages/to multiple audiences
  - b. Collaboration
    - i. Partnering with different organizations for acquiring and trading seeds
    - ii. Each group understanding where their own seed inventory can be deployed in the future
    - iii. Bring in non-profits to break down barriers
    - iv. More workshops like this one
  - c. Policy/regulations/guidelines
    - i. Formalizing protocols seed collection, cleaning, treating, storage, testing, transportation, etc.
    - ii. Seed credits instead of carbon credits
    - iii. State governments to be the middlemen in this
    - iv. Political willpower has to be sustained, this is not a short term problem
  - d. Seed/plant materials
    - i. Proactively use surplus seed that can't be used in places where germination rates need to be a certain percentage
    - ii. Strategically located seed across the region

- iii. Creating new genotypes that work in the future climate
  - e. Take advantage of major events/disturbances (like fire)
    - i. Great example from California
      - 1. Governor's forest management task force and the reforestation working group (Cal Fire, Forest Service, Industrial Timber companies)
  - f. Incentivize landowners to incorporate AM into reforestation
- 4. How can we increase collaboration and cooperation to promote assisted migration?**
  - a. More workshops
  - b. Education of how to use tools will allow educators to be confident in sharing the tools with landowners
  - c. Information sharing
    - i. Seed/plant materials exchange
      - 1. Virtual seedbank
      - 2. ESRI map the public can access
    - ii. Database of AM trials
      - 1. Public should be able to access
  - d. Identify what unknowns we need to figure out and how projects and roles that will answer those questions
  - e. Seed sharing, especially for small landowners
- 5. What do we need to implement AM?**
  - a. MONEY
  - b. Physiological measurements
  - c. For data sharing, consistent guidelines of what needs to be shared and how

## UNIQUE IDEAS

1. "Dating sites" for matching seedlots with planting sites
2. Co-op, hub, or seed collective for central information and seed services
3. Seed credits instead of carbon credits
4. Nursery tree fleet vehicle to bring resources and technical assistance to people
5. Crop insurance, nurseries can't take responsibility for failed trees

## IMPORTANT ORGANIZATIONS AND THEIR WORK

1. The Nature Conservancy
  - a. Case studies of assisted migration (not just trees) to answer a few questions:
    - i. What can we learn from historical mistakes and successes (all organisms)?
    - ii. Why was it a success or failure? Community engagement plays large role on both ends
    - iii. What are the best practices across those successes and worst practices across failures?
    - iv. What can we take away from all of this to share outward?
2. NNRG – Forest Adaptation Network
  - a. Google group platform where people exchange resources, questions, research, etc.
  - b. Quarterly meetings to discuss new research and projects mostly in the Puget Sound
    - i. 3 sub-committees: assisted migration risk assessment, best monitoring practices for assisted migration, Urban forest adaptation
3. ENAMES
  - a. Operational implementation

- b. Be a place for community to find answers for the question of assisted migration
  - c. Building foundation of partners who are involved
  - d. Summaries on key reforestation topics and body of knowledge to be put on the website (case study library)
- 4. CalFire emergency response team
  - a. They assess reforestation before fires have stopped burning and put together a team to make sure it happens *quickly*
- 5. California
  - a. Cone camp – 2-day training sessions in different types of forests to help identify and collect cones, store seeds, process seeds, order seeds, etc.
  - b. Reforestation cooperative to bring people together on a quarterly basis
  - c. Reforestation Because of You - private landowners who might let us collect cones on their property and in turn they get 25% of the collection stored for free for their property

#### FOLLOW-UPS

1. NW Climate Hub website page on resources
2. Plan another workshop and get more people from sectors not recognized involved (possibly in Oregon, possibly with field component)
3. Identify an organization to take on leading this effort and starting collaboration between organizations
4. Organize seed/planting materials information to reduce the logistical barriers
5. Create case studies
6. Create consistent guidance of how to do assisted migration
7. Demonstrations of successes to show people
8. Operationally invest in adding assisted migration to the Forest Service program of work and make it a priority throughout the agency
9. Look out for the ENAMES Survey
10. The Nature Conservancy is developing a tool to shed light on reforestation successes and failures