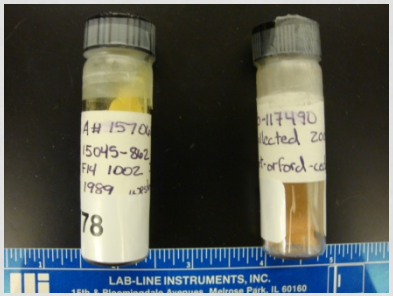
COLLECTING AND SHIPPING PLANT TISSUE SAMPLES FOR GENETIC ANALYSIS

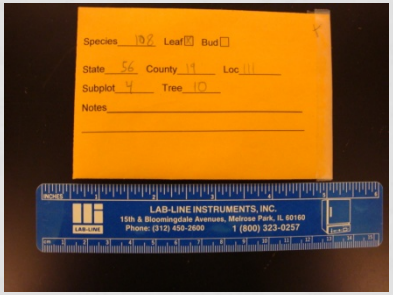
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

NATIONAL FOREST GENETICS LABORATORY (NFGEL)

COLLECTING AND LABELING (1)

- **Collect sufficient amount of tissue for analysis.**
- **All individual sample containers (ziplock bags, envelopes, vials, etc.) need to be well labeled as to sample identity. This often includes a label on the outside as well as inside of the container.**





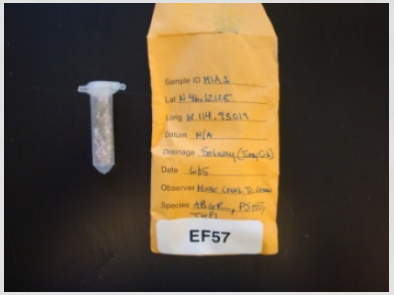
COLLECTING AND LABELING (2)

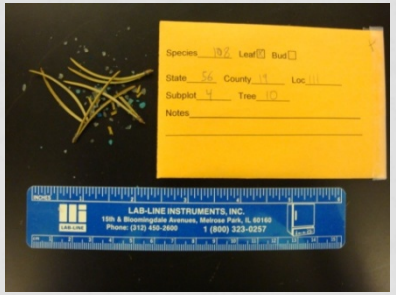
- **Further examples of collections for genetic analysis.**

  Amount and type of tissue is dependent on project objectives.

COLLECTING AND LABELING (3)

- Tissue samples can be sent on desiccant depending on the genetic marker system used in the lab.
- Brand of desiccant is critical (Flower Drying Art works best).
- Add enough desiccant to volume of tissue to completely dry the sample.
- Label collection containers with clear sample ID.





COLLECTING AND LABELING (4)

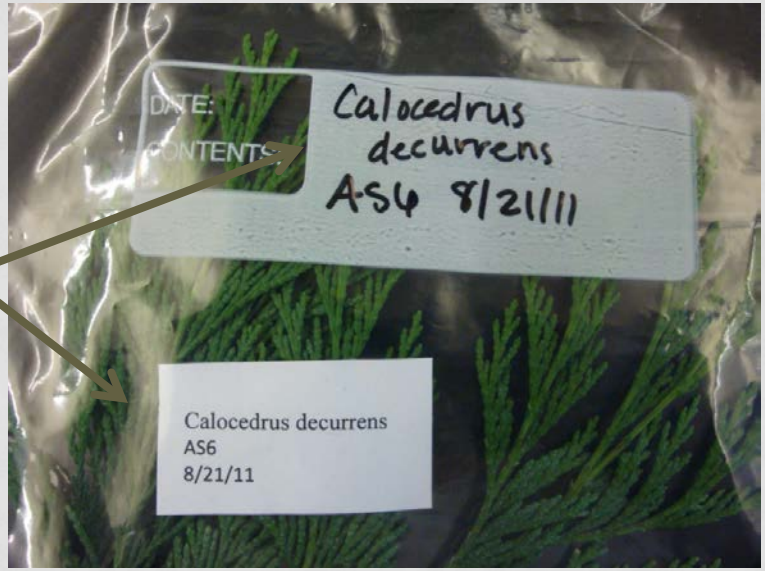
- **Sample information should be organized into an excel spreadsheet and emailed to NFGEL as per collection guidelines.**
  - **Include species ID, sample ID, collection date, location information, geographic coordinates of sample (latitude, longitude, elevation), and other relevant fields as appropriate for the study.**

Example of sample information spreadsheet:

Sample ID#	Site Description	County	State	Latitude	Longitude	Elevation (ft)	Date Collected	Diameter @ BH	Height	Age at DBH	Comments	Comments
SG1	Stove Gulch	Natrona	WY	43.2479	-106.3859	5460	11/16/2011	22	30	81	Disjunct Stand	Multi-aged cohort
SG2	Stove Gulch	Natrona	WY	43.2483	-106.3856	5447	11/16/2011	26.8	35	261	Disjunct Stand	Multi-aged cohort
SG3	Stove Gulch	Natrona	WY	43.2490	-106.3846	5442	11/16/2011	26.7	40	200	Disjunct Stand	Multi-aged cohort
SG4	Stove Gulch	Natrona	WY	43.2485	-106.3842	5437	11/16/2011	18.6	29	n/a	Disjunct Stand	Multi-aged cohort
SG5	Stove Gulch	Natrona	WY	43.2482	-106.3838	5465	11/16/2011	14.4	30.4	132	Disjunct Stand	Multi-aged cohort
LB1	LAVA BEDS	Siskiyou	CA	41.6916	-121.5718	5067	1/25/2012	37.10	102	338	N/A	N/A
LB2	LAVA BEDS	Siskiyou	CA	41.6919	-121.5730	5103	1/25/2012	29.00	96.5	236	N/A	N/A
LB3	LAVA BEDS	Siskiyou	CA	41.6929	-121.5734	5066	1/25/2012	25.10	70	254	N/A	N/A
LB4	LAVA BEDS	Siskiyou	CA	41.6936	-121.5728	5058	1/25/2012	26.80	85	145	N/A	N/A
LB5	LAVA BEDS	Siskiyou	CA	41.6998	-121.5711	5071	1/25/2012	33.60	93	182	N/A	N/A

COLLECTING AND LABELING (5)

- **Samples should be identified the same on all sample labels, packing list, and sample ID spreadsheet.**



Example: sample information spreadsheet

SampleID:	Species:	Location:	Date Collected:	Latitude:	Longitude:	Collection Comments:
HT1	Calocedrus decurrens	Placerville, CA	8/19/2011	38.7297	-120.7975	was very hot when collected
HT2	Calocedrus decurrens	Placerville, CA	8/19/2011	38.7297	-120.7975	was very hot when collected
HT3	Calocedrus decurrens	Placerville, CA	8/19/2011	38.7297	-120.7975	was very hot when collected
AS4	Calocedrus decurrens	Placerville, CA	8/21/2011	38.44	-120.44	GPS ± 14 m
AS5	Calocedrus decurrens	Placerville, CA	8/21/2011	38.44	-120.44	GPS ± 14 m
AS6	Calocedrus decurrens	Placerville, CA	8/21/2011	38.44	-120.44	GPS ± 14 m

COLLECTION – UNDER COOL CONDITIONS

- Healthy tissue is required for analysis.
- Collect during coolest part of the day; out of direct sun.
- Place tissue from each individual to be analyzed in separate ziplock bags or other appropriate container.
- Keep samples in a cooler with blue ice while collecting in the field; and under refrigeration back in the office until shipping; ship in coolers containing blue ice.
- Protect tissue from freezing by lining blue ice with thin layer of newspaper.

SHIPPING

- Use appropriate sized container for number and size of samples.
- Protect styrofoam ice chests inside cardboard boxes.
- Use appropriate number of blue ice blocks when shipping tissue under cool conditions.
- Include a sample ID spreadsheet and NFGEL Packing List.
- Seal Box, write ‘vegetative material’ on outside of box.
- Ship to NFGEL as quickly following collection as possible.

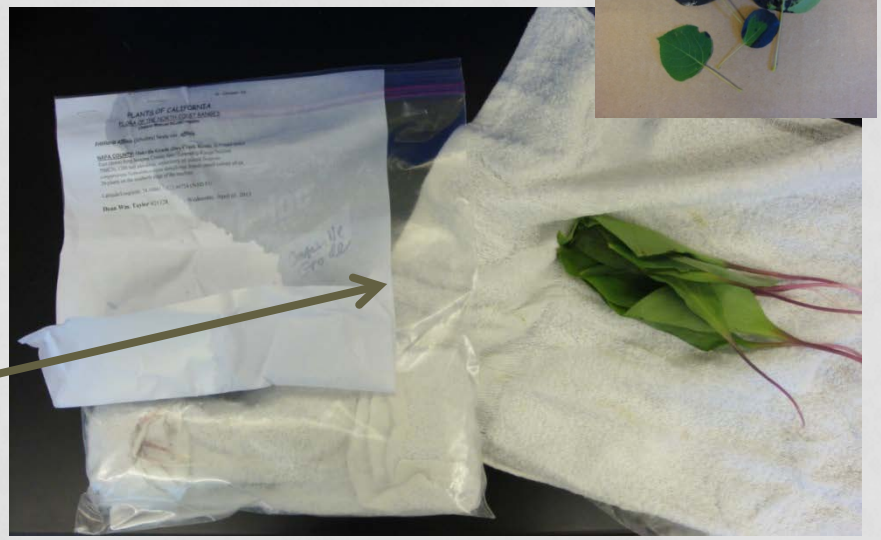
WHAT NOT TO DO

Individual sample collections all placed in single plastic bag – individual sample identity not maintained.

Spreadsheet missing – no sample identities provided.

Blue ice blocks missing – samples sent warm.

Clothing was used as packing material. Use appropriate sized shipping container for number of samples shipped and appropriate packing material to cushion and insulate samples.



Wet ice melted and soaked samples and paperwork. Leaves crushed together. Both lead to tissue degradation.

MORE WHAT NOT TO DO

Ice chest not sent in protective cardboard box. Frozen water bottles were used in addition to blue ice. Weight of water bottles (and lack of protective box) caused ice chest to break in transit. Frozen water bottles quickly melt. Coupled with broken ice chest, samples arrived warm and crushed.