

Managing Insects & Disease in Commercial Plantations



by Bill Morrison
Soper-Wheeler Company



SW Ownership

97,000 acres in CA

10 Counties

2/3 Sierra

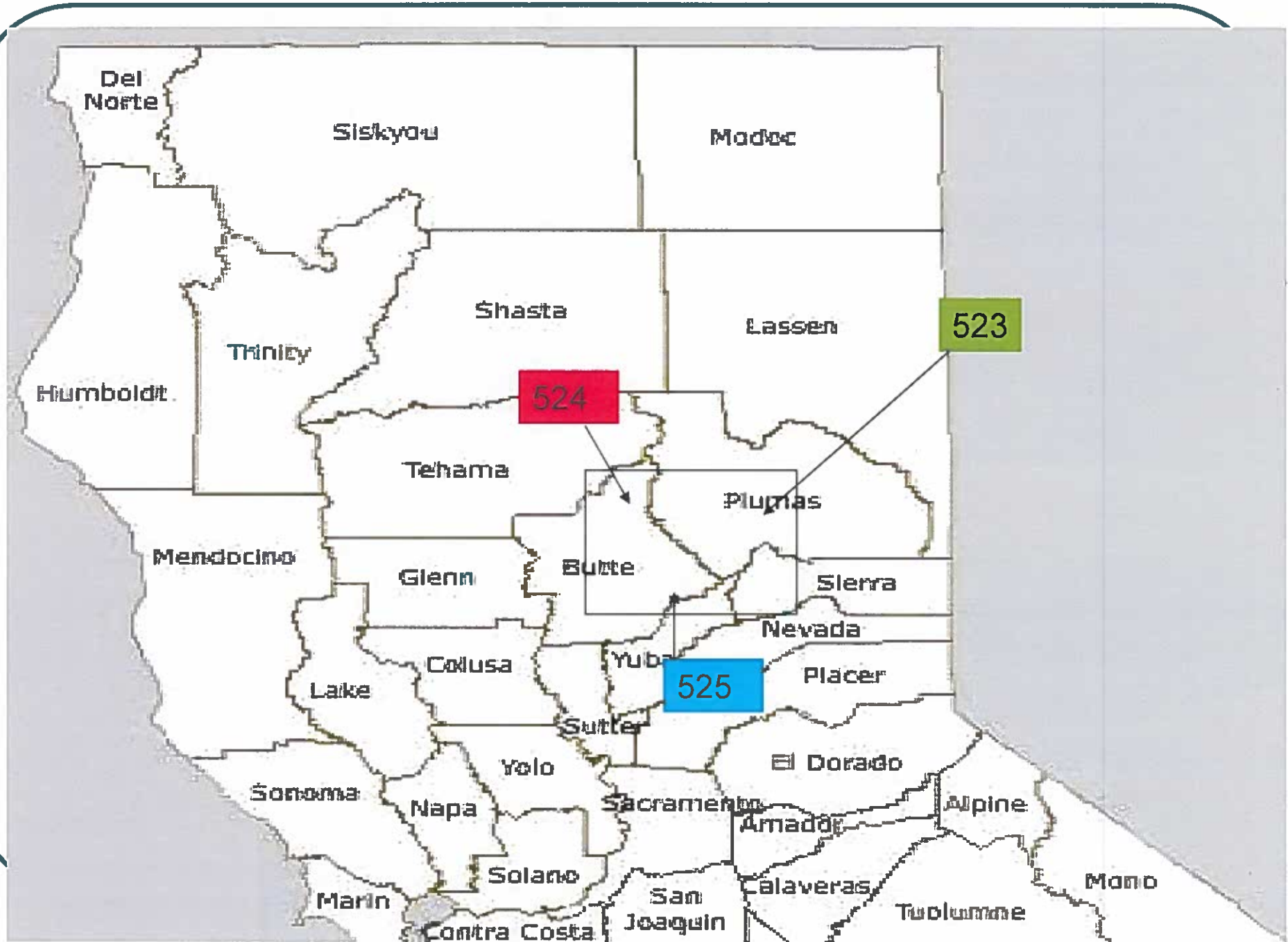
1/3 Coastal

6,500 ha in NZ

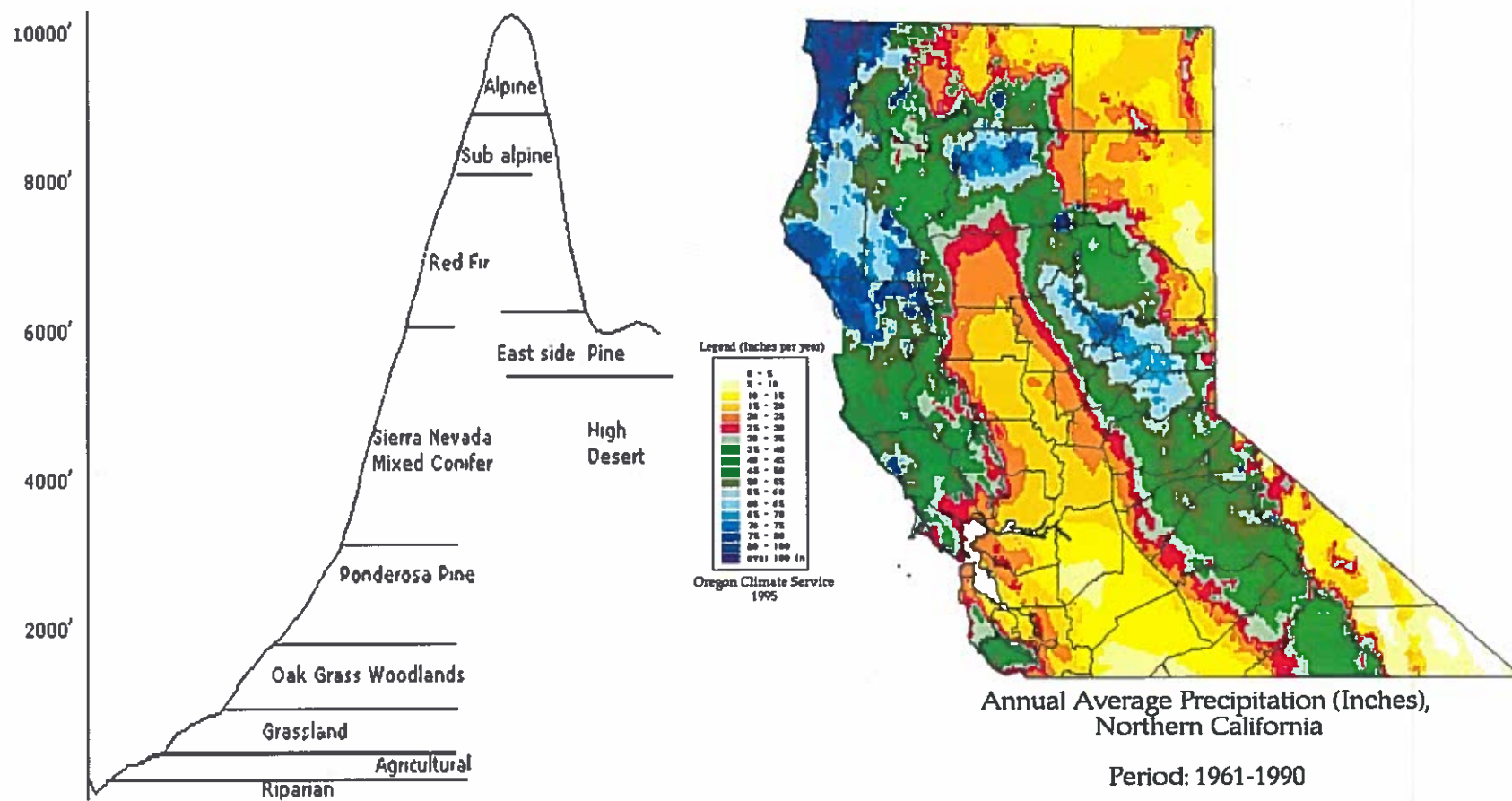


THE NEW ZEALAND
REDWOOD COMPANY™



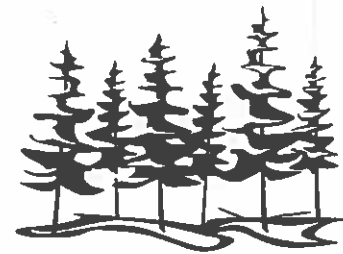


Forest type & precipitation



Commercial Plantations

- Achieve Maximum Sustained Production
- Minimize \$\$\$
- Deliver diversified commodities
- Manage for forest stand health
- Manage for desired fuel type
- Aesthetics



Maximum Sustained Production

- Tree Improvement
- Vegetation Control
- Stand Density



Strawberry Valley Tree Farm

Major Insects and Pathogens in Commercial Plantations

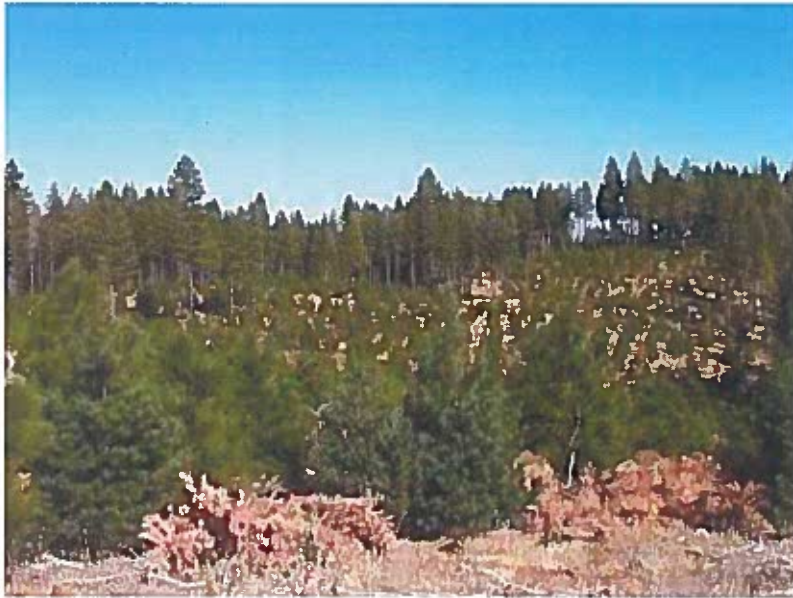
- *Ips*
- *Dendroctonus*
- *Scolytus*
- *Eucosma*
- *Rhyacionia*
- White Pine Blister Rust
- Western Gall Rust



Tree Farm Records

- 1975-76 Drought related increased mortality with *Dendroctonus* (*brevicomis* & *ponderosae*) even some mortality associated w/ *valens*.
- 1987 Tussock Moth
- Ips. – ongoing management practices & low elevation pine plantations(off site)

Commercial Plantation Insects



- *Ips*
 - Thin early
 - Seasonal timing of PCT
 - No lopping

Ips - PCT



Commercial Plantation Insects



- *Eucosma*
 - Species Diversity
 - Monitoring
 - Treatment w/ pheremone/insecticide (Permethrin)





Rhyacionia





Commercial Plantations – management activity



Sanitation-Salvage Harvest



Seed Production Area



Cone Insects

- Contarinia – cone midges
- Megastigmus – Douglas-fir seed chalcid



Commercial Plantations - Pathogens



- White Pine Blister Rust
 - Sanitize adjacent stands
 - Resistance Screening
 - 47 trees identified



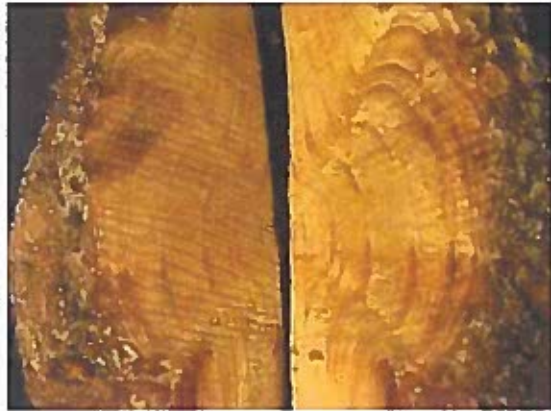


Commercial Plantations - Pathogens

- Western Gall Rust
 - Severe defect
 - Sanitize adjacent stands!!!!
 - Species Diversity
 - Pruning
 - Pre-commercial thin
 - Treatment w/ fungicide
 - Future Resistance Screening?



Western Gall Rust Implications



Western Gall Rust Implications



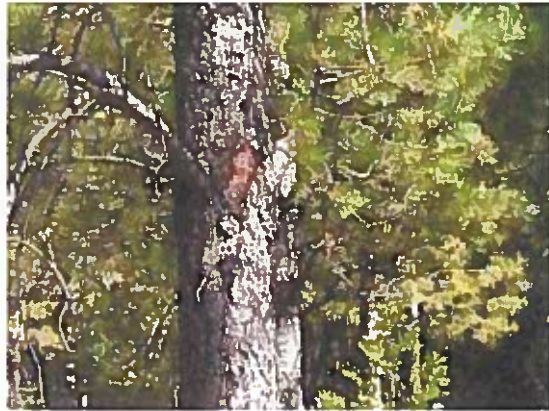
Western Gall Rust - Sanitation



Western Gall Rust – Species Diversity



Western Gall Rust – Pruning & PCT



Western Gall Rust – Fungicide Treatment

TRIADIMEFON



Resistance??

- NSTIA Progeny testing
- Detection of progeny showing repeated resistance?



Managing Insects and Disease in Commercial Plantations

- Managing Commercial Plantations to minimize negative impacts from insects and disease
 - Adjacent Stand Management
 - Tree Improvement
 - Vegetation Control
 - Stand Density Control
 - Species Diversity

Acknowledgements



- NSTIA
- SCIFMRC
- CFPC
- FVMC

THE END

