

TEM and PEM Inventories

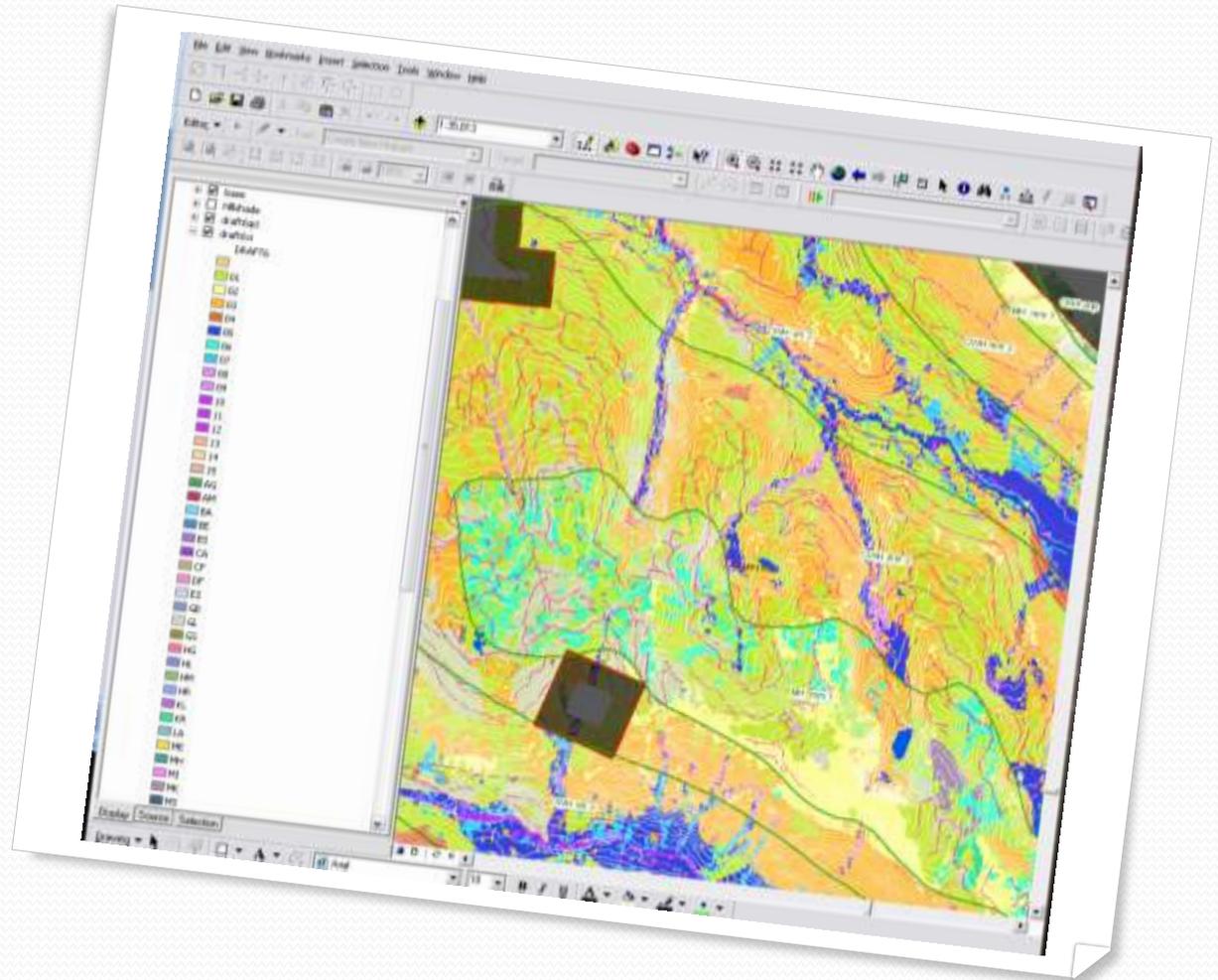
Their Utility to Forest Land
Base Management

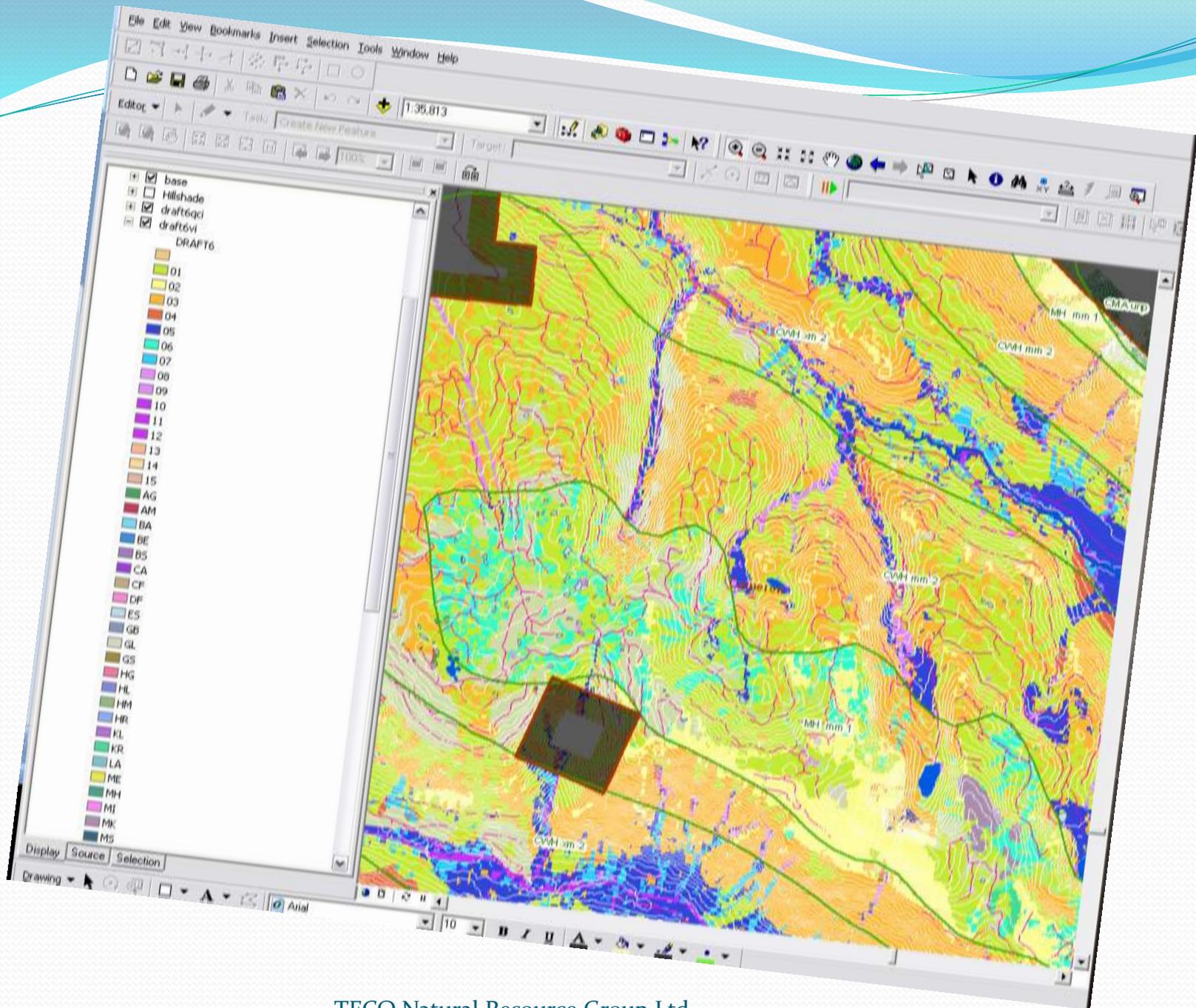
What are TEM and PEM?

TEM and PEM are acronyms for ecosystem inventories.

TEM = photo interpreted
terrestrial ecosystem
mapping

PEM = computer model
generated
predictive ecosystem
mapping





TEM and PEM similar, but different

TEM

- Polygons (**hand drawn shapes**) interpreted by humans 6-10 ha in size
- Describe up to three ecosystems per polygons

TEM polygon example

- CWHds2 -5-01-6/3-04/6/2-04-4
- Which means inside that shape you will find
- 50% HwFd-Cat's tail moss - Mature forest/
- 30%-Fd Fairybells- Mature Forest/
- 20% Fd Fairybells – Pole Sapling

PEM

- Modeled rasters (**digital pixels**) 20x20 meters in size
- Predict a single ecosystem per raster

PEM raster example

CWHds2-01 which means
That raster represents a Hemlock, Douglas
Fir cat's tail moss ecosystem 20 meters
square

Island Timberlands TEM and PEM Inventory

- TEM completed in many places over several years
 - complex polygons, individual ecosystems non spatial within the polygon
- PEM model used to fill in the gaps
 - Simple rasters with a single site series per raster

TEM/PEM Project recently completed

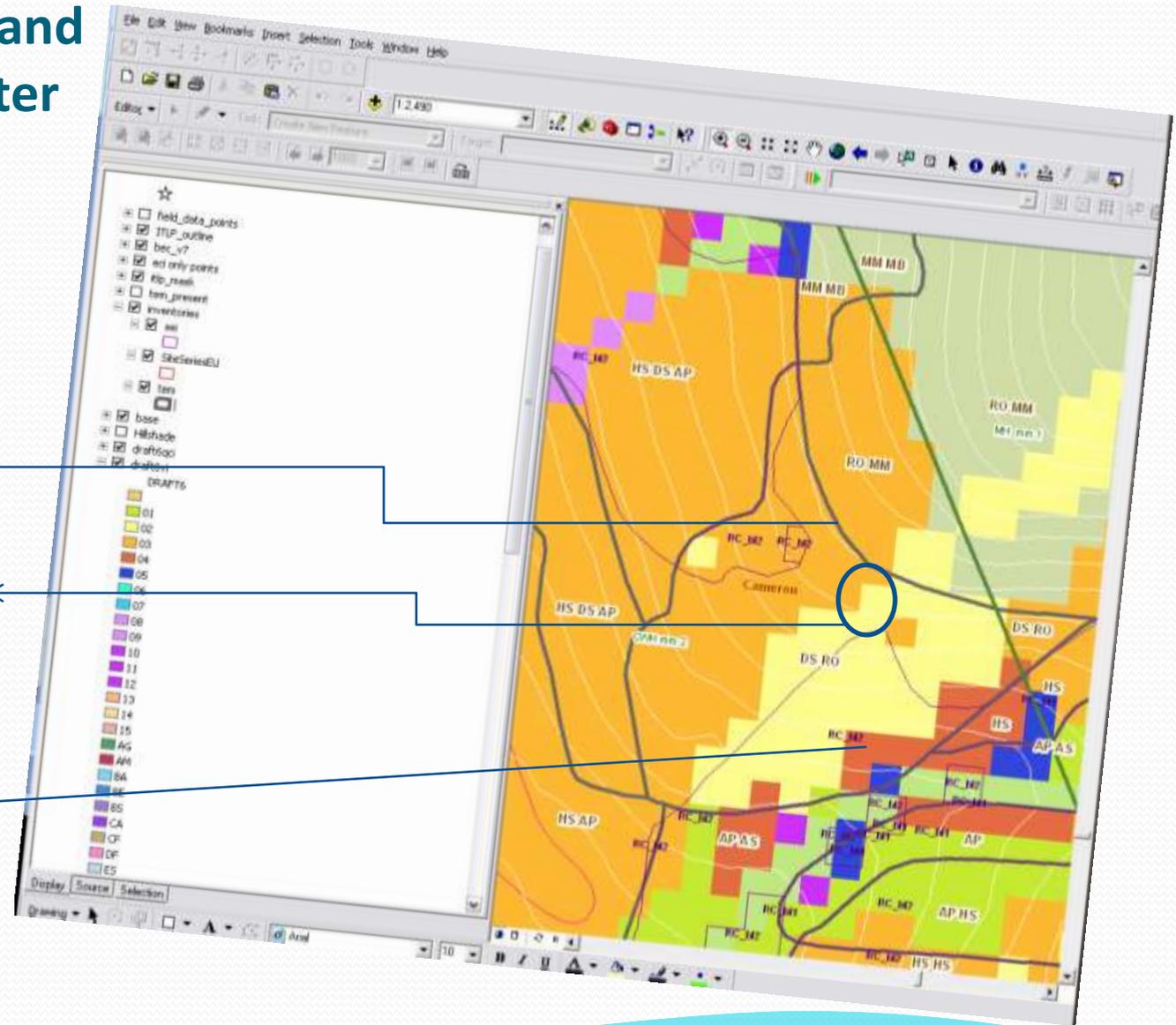
- existing TEM polygons “shattered” into rasters
- Single ecosystem assigned to each raster using TEM result and PEM model rules
- PEM model filled gaps
- 100% of ITL’s area now has a single ecosystem call per raster

TEM polygons and PEM rasters after “shattering”

Original TEM polygon outline in dark grey ←

Original TEM polygon call =two map units ←

PEM shows where the two map units are in space ←



Why Rasters?

- Rasters simplify analysis of the land base
- Rasters give the opportunity to marry many inventories completed on a raster base without the problem of slivers, cross products and data base compatibility
- Working with a combined raster data base gives tremendous power to work with multiple inventories

Ecological Inventories as a Tool for Planning

Integrated forest management requires simultaneous consideration to many aspects of the land base

What are ecological inventories used for?

- **Site productivity assessment**
 - Field measures of site index and tree productivity can now be tied to a single ecosystem and used to predict production over the entire land base

What are ecological inventories used for?

- **Wildlife habitat assessment**

- Each ecosystem, through its seral stages from initial disturbance through Old Growth , has the potential to support wildlife through their seasonal needs for;
 - forage,
 - shelter,
 - reproduction,
 - migration

What are ecological inventories used for?

- **Biodiversity Assessment**
 - The location of rare, sensitive or other special ecosystems can be easily added to planning processes

Conclusion

Ecological inventories are necessary

They will change with time and technology

They are a critical planning tool for industry