

# Fires and Fireshed >>> Management

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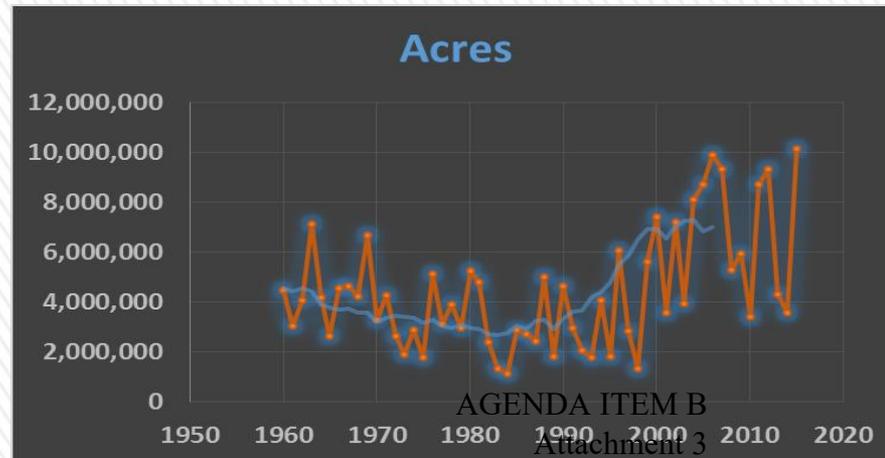
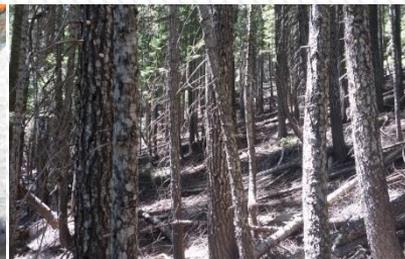


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# SCIENCE TODAY:

1. Fire history and ecology
2. Fuel hazard
3. Fire risk assessment
4. Smoke management
5. Climate change and fire seasons/behavior

- Warmer temperatures
- Longer fire seasons
- Precipitation and snow pack
- Drought stress and impacts



1. Fire history and ecology
2. Fuel hazard
3. Fire risk
4. Smoke management
5. Climate and fire
6. Fuels treatments/planning can happen and are effective

- ✓ Stand-level hazard (Wildland-Urban Interface): mechanical, chemical and burning
  - > Landscape-level fire risk
  - > Return on that investment, particularly with productive sites
  - > Transition from wildland to structure fires





**But we are losing ground... wicked problem!**

# FIRE BEHAVIOR GRADIENT

Low

Mixed

High



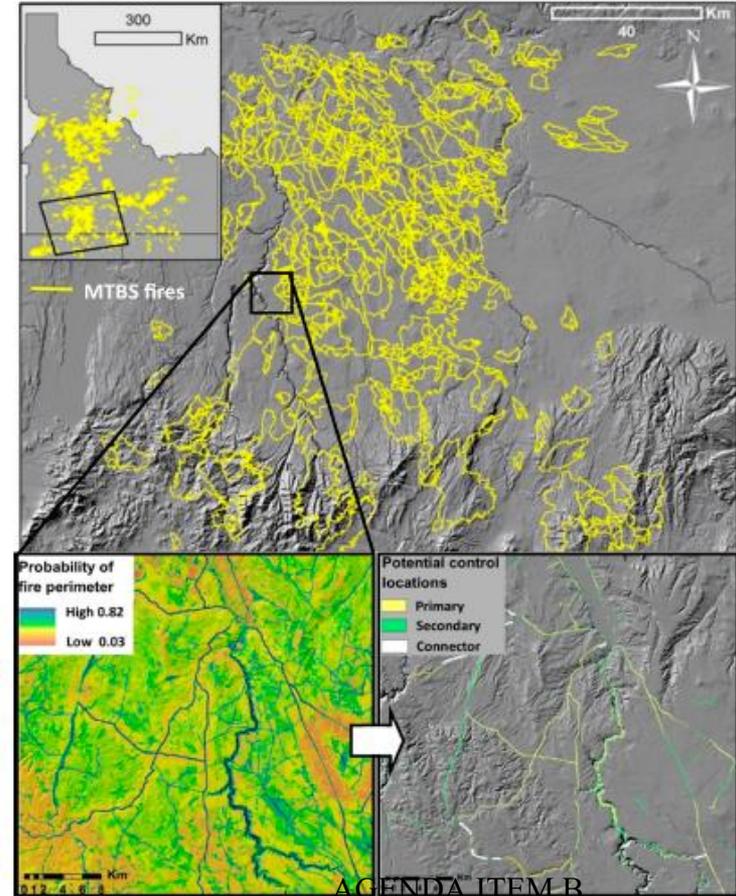
20<sup>th</sup> Century



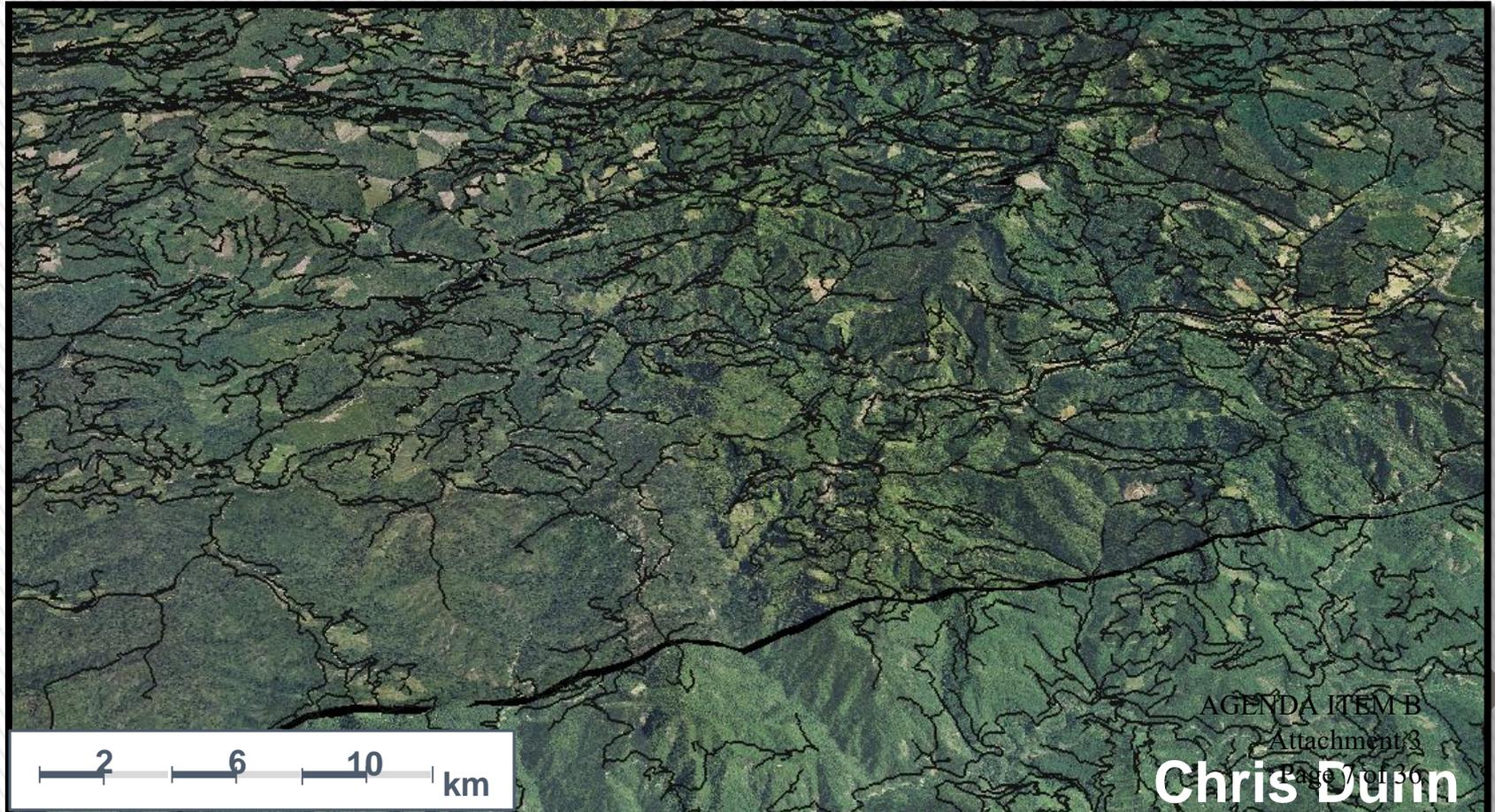
**Conceptual Framework** >

# New framework

- » Large “firesheds” WILL burn
  - » Plan for them **NOW**: scaled at 5- to 10,000 ac
  - » Treatments blended with roads, topography and ownership
  - » Preparedness funding tied to this effort, not suppression



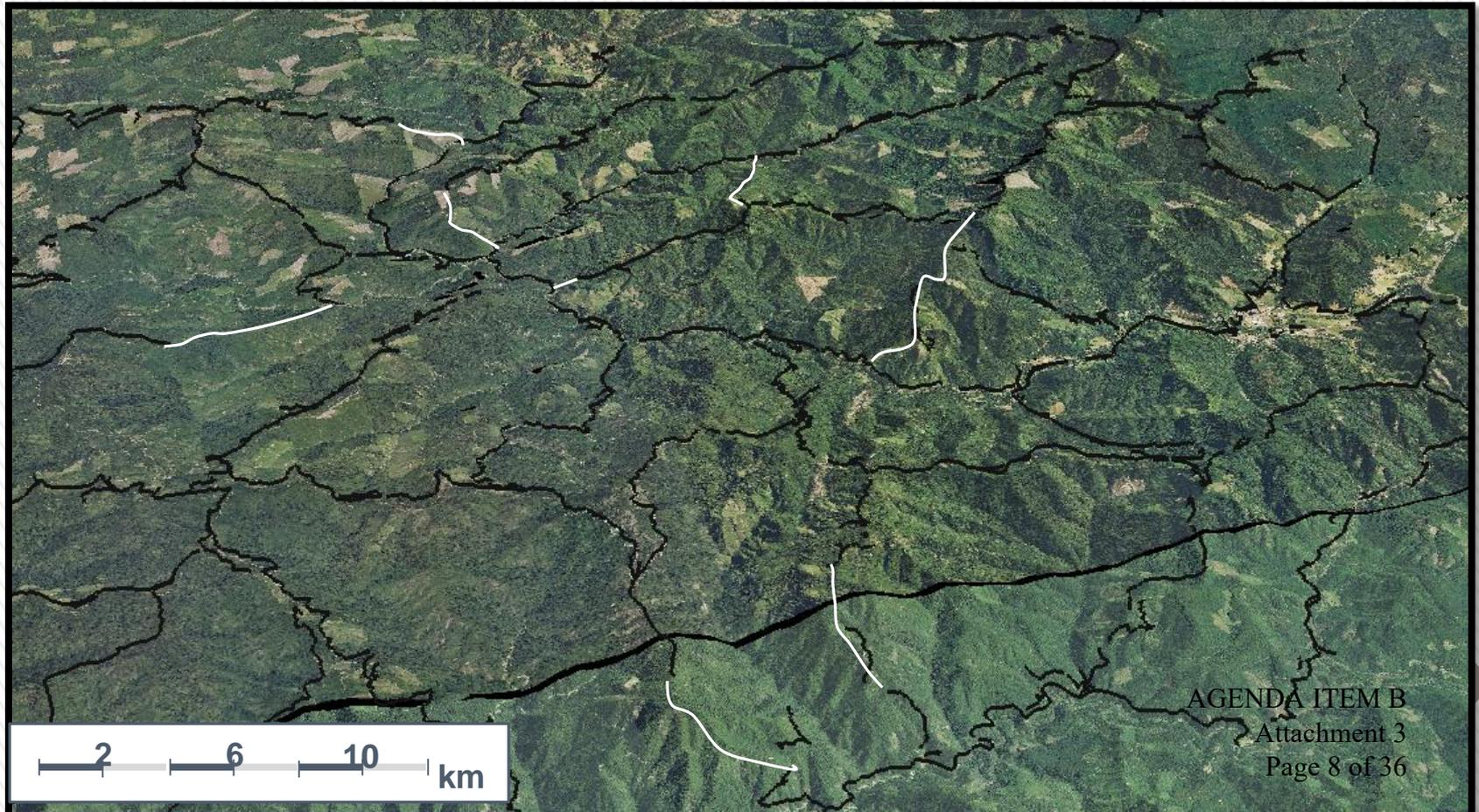
# Response PODs (r-PODs) - *Missoula*



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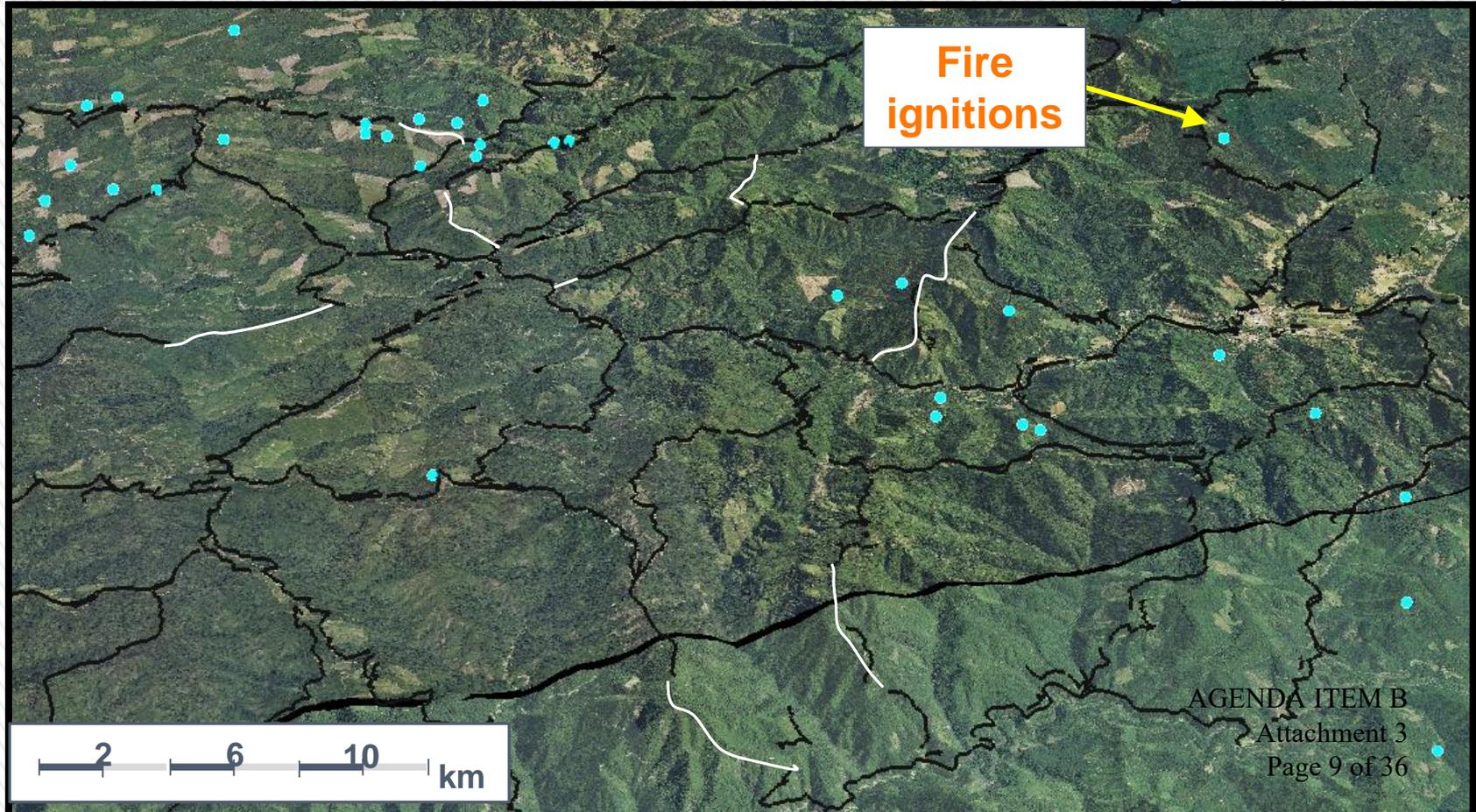
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**Chris Dunn**

# Response PODs (r-PODs)



# Means-based objectives

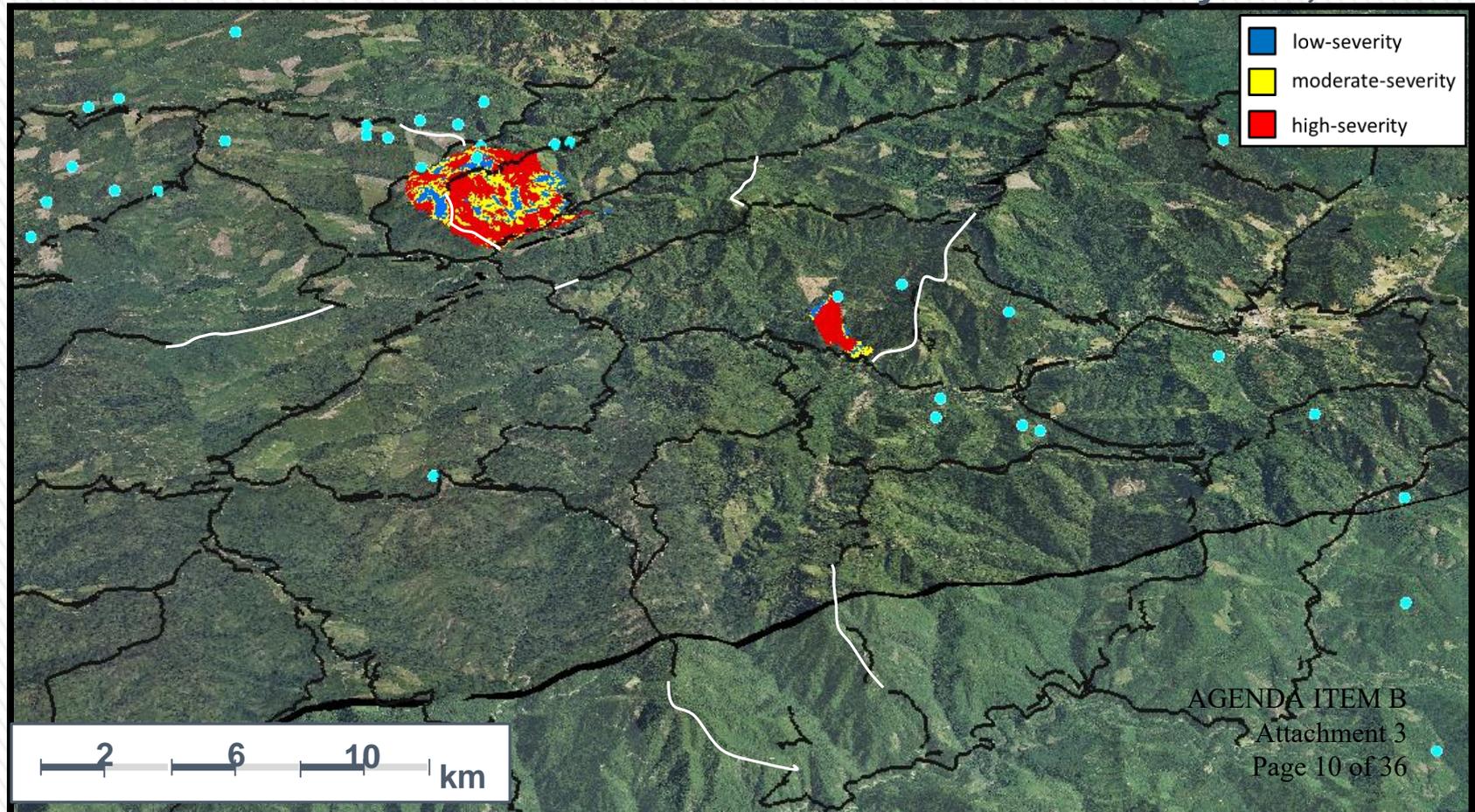
July 26<sup>th</sup>, 2013



# Identify control points from r-PODs

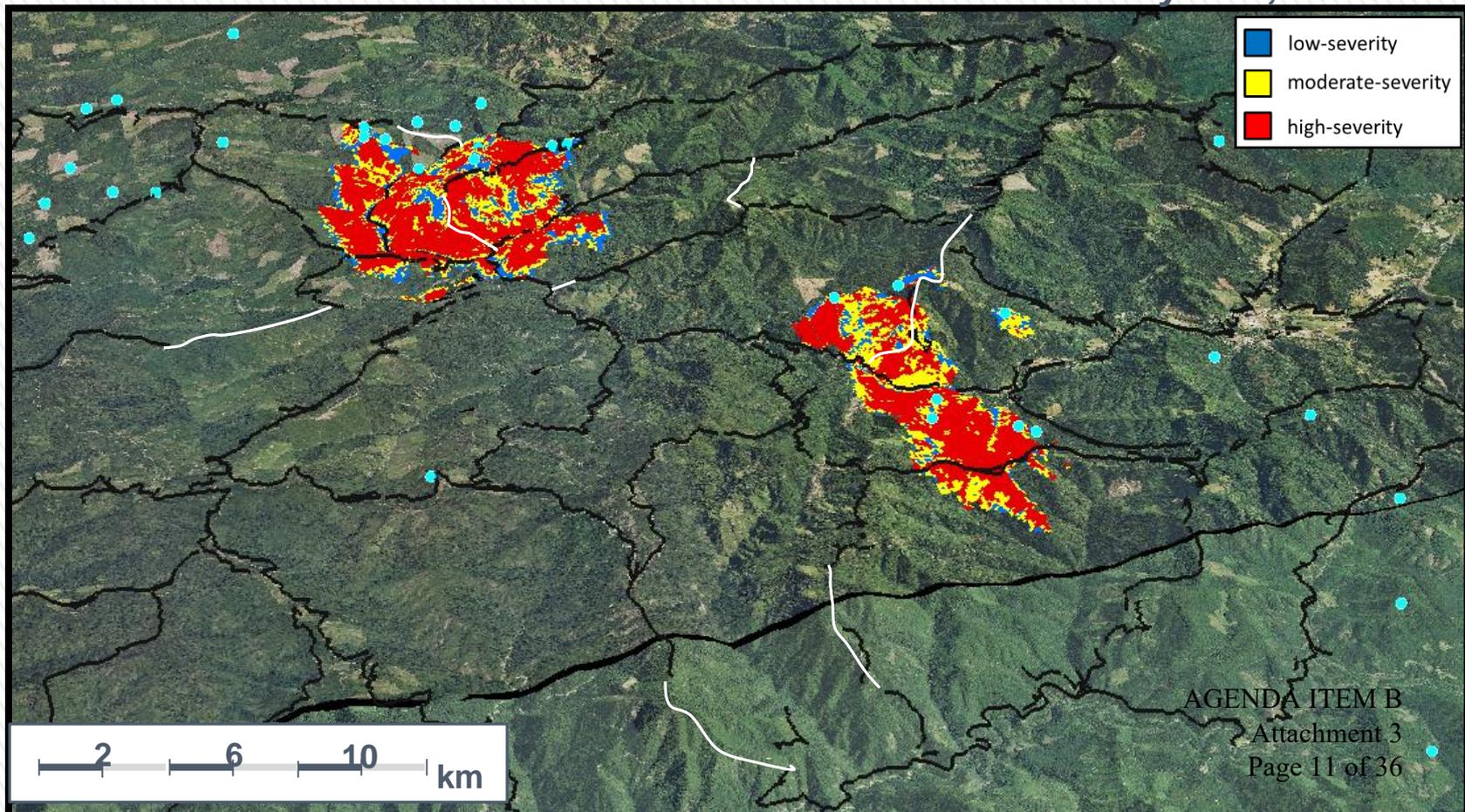
Cumulative area: 1,376 ha

July 26<sup>th</sup>, 2013



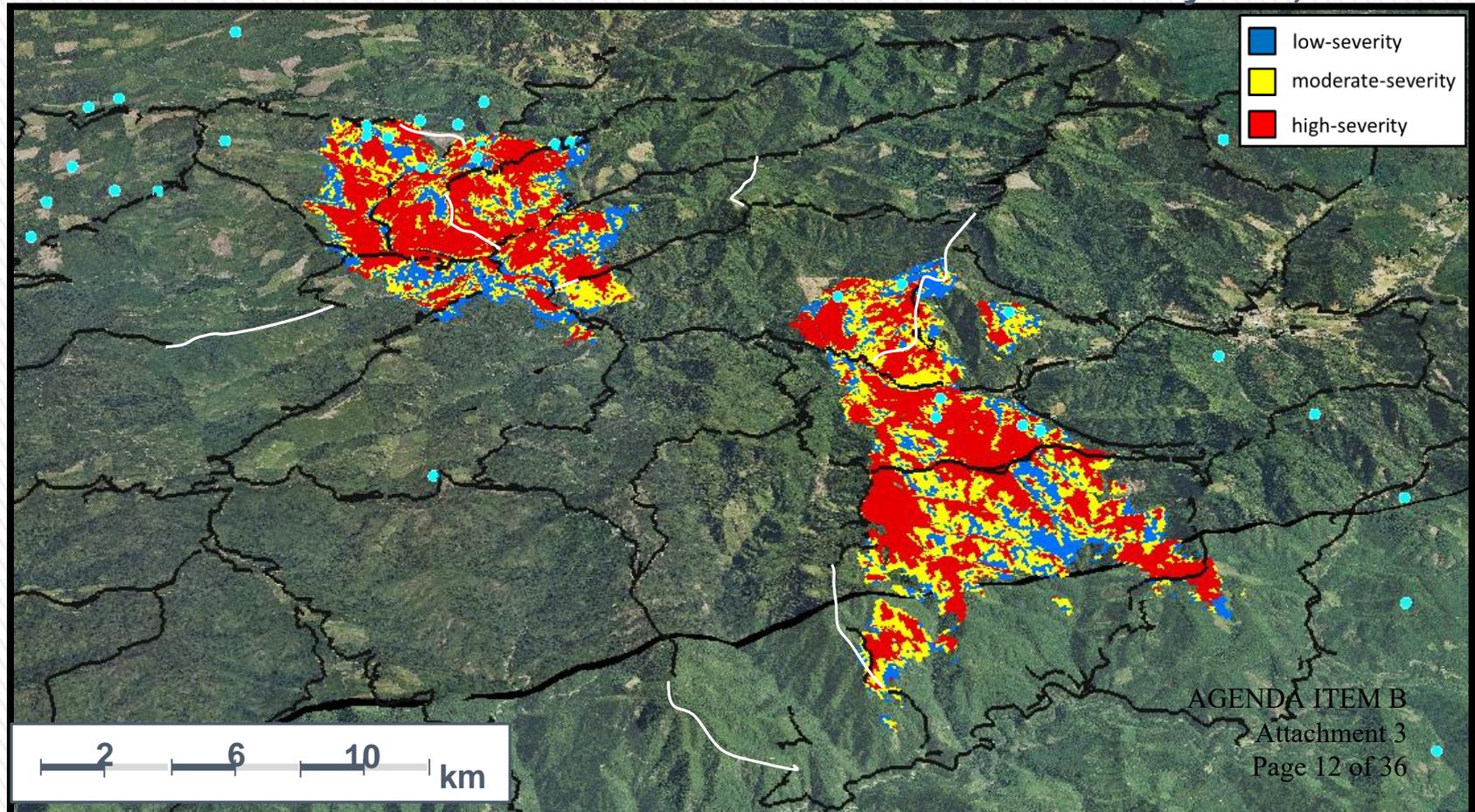
Cumulative area: 4,955 ha

July 27<sup>th</sup>, 2013



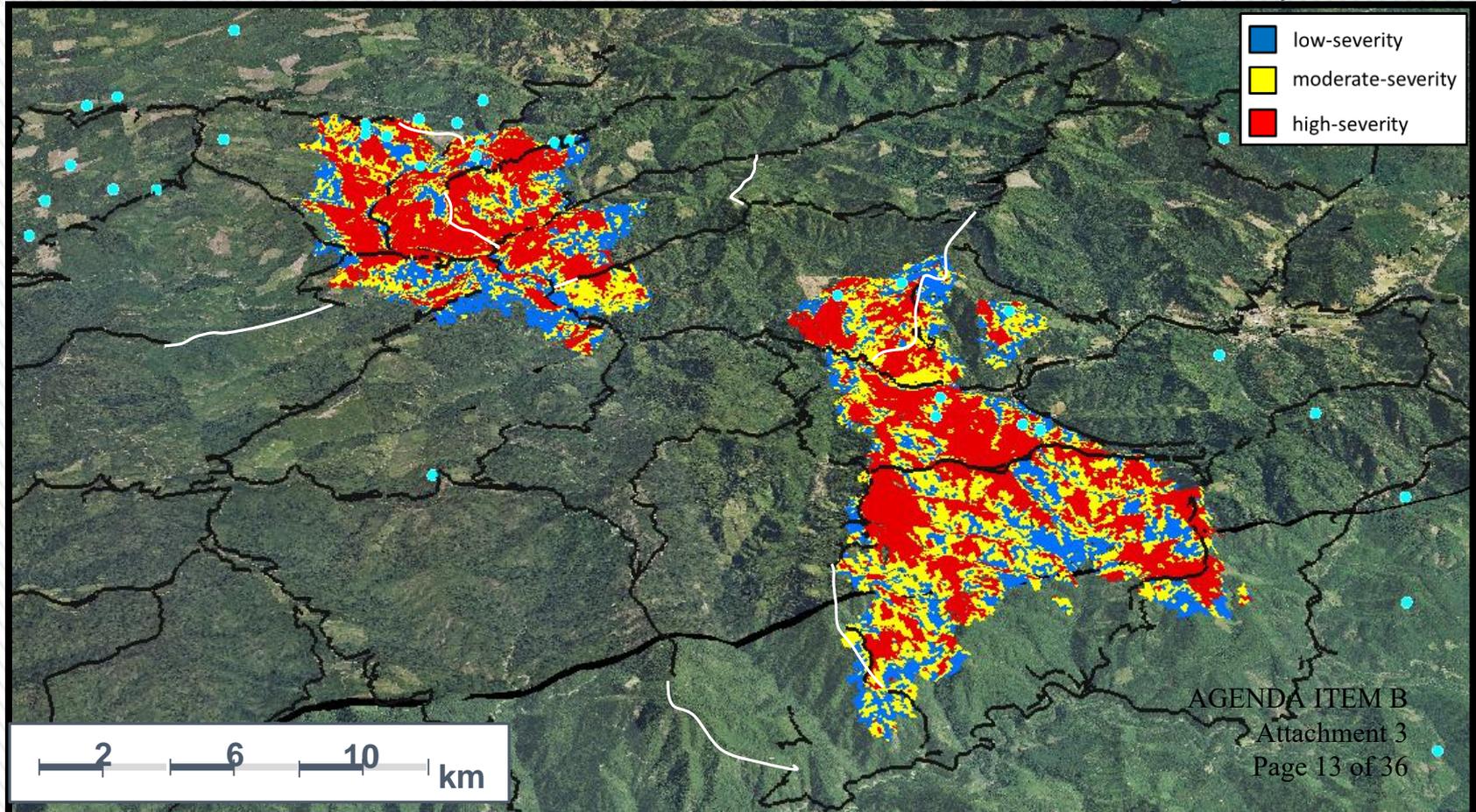
Cumulative area: 8,755 ha

July 28<sup>th</sup>, 2013



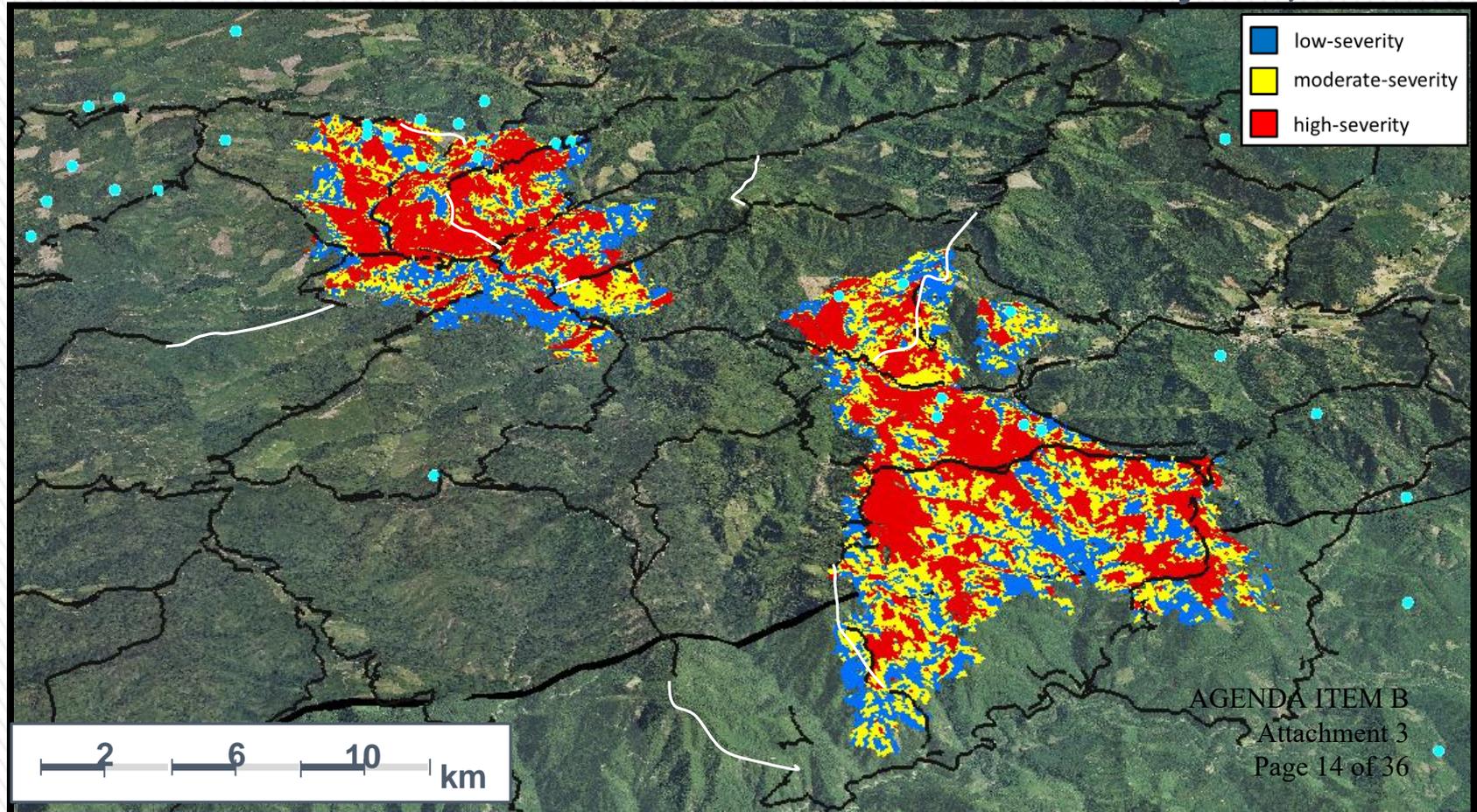
Cumulative area: 10,401 ha

July 29<sup>th</sup>, 2013



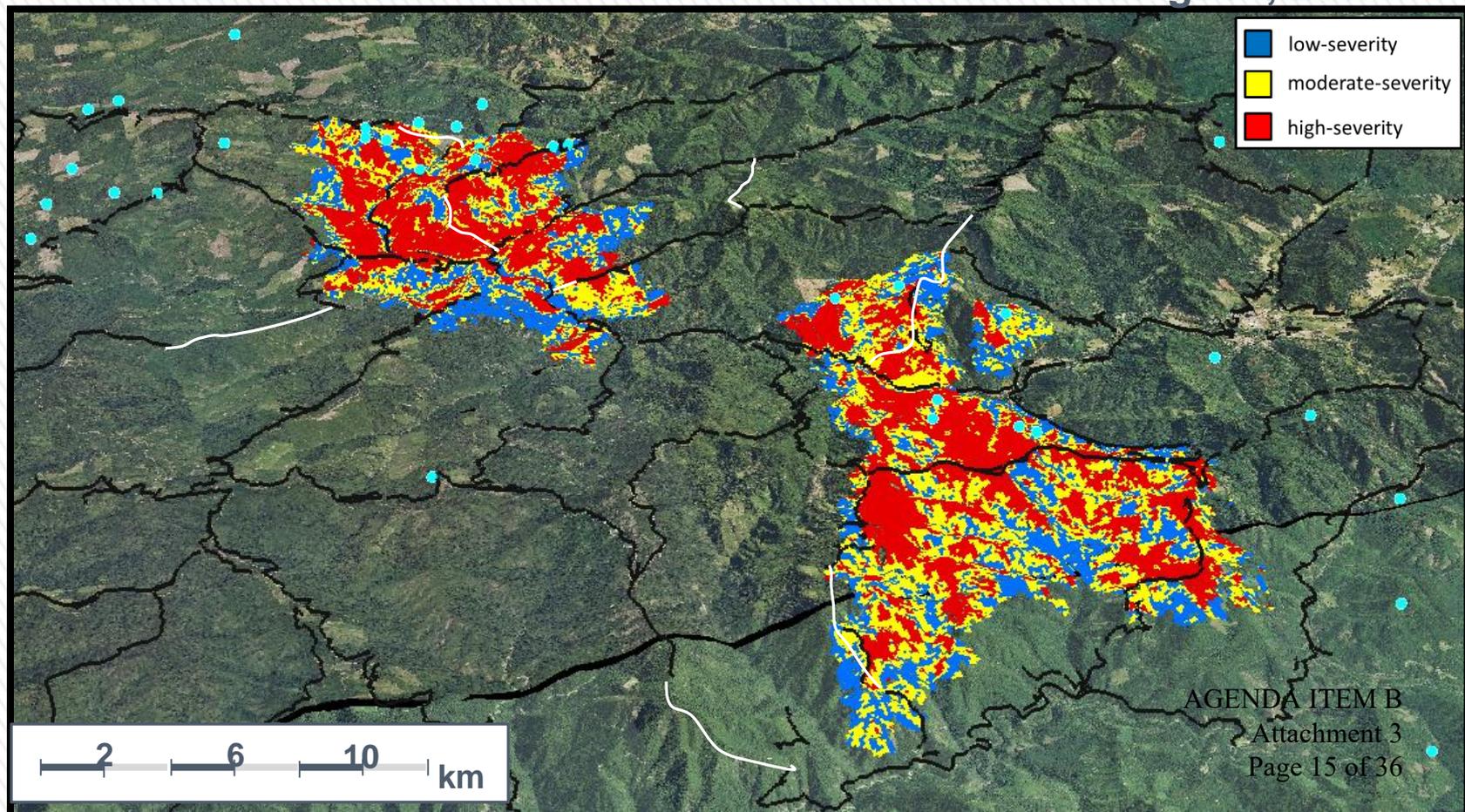
Cumulative area: 11,432 ha

July 30<sup>th</sup>, 2013



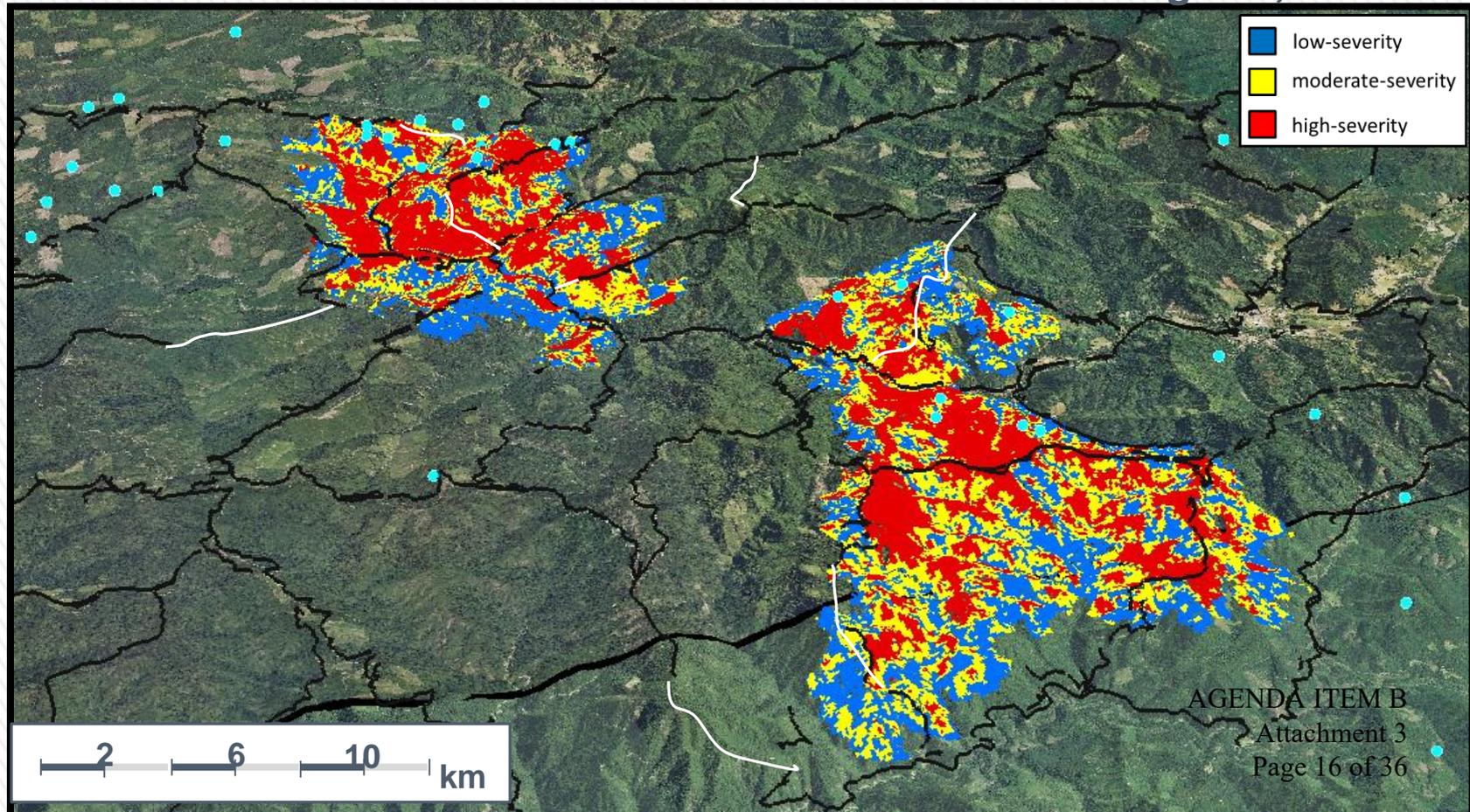
Cumulative area: 11,538 ha

Aug. 1<sup>st</sup>, 2013



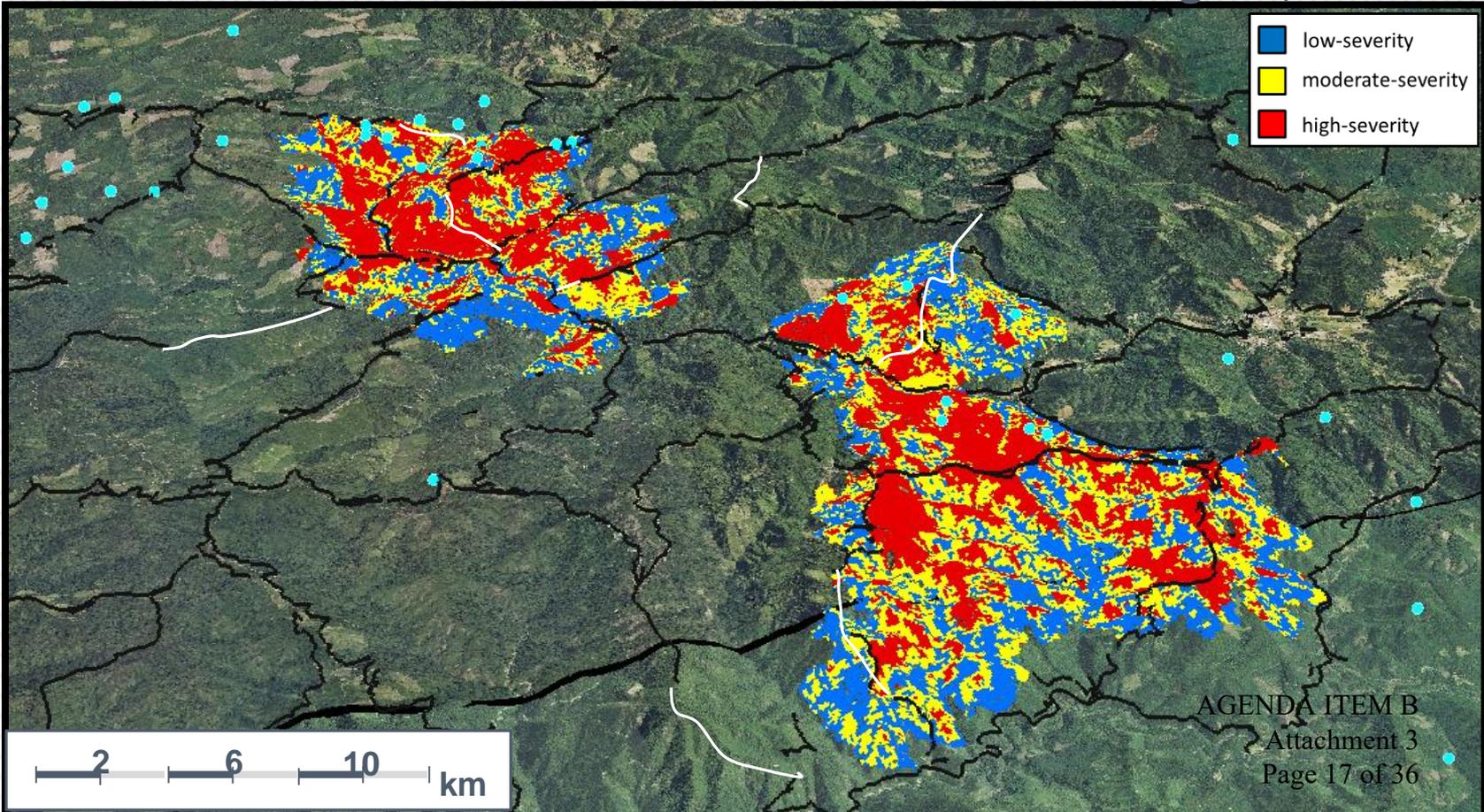
Cumulative area: 13,061 ha

Aug. 2<sup>nd</sup>, 2013



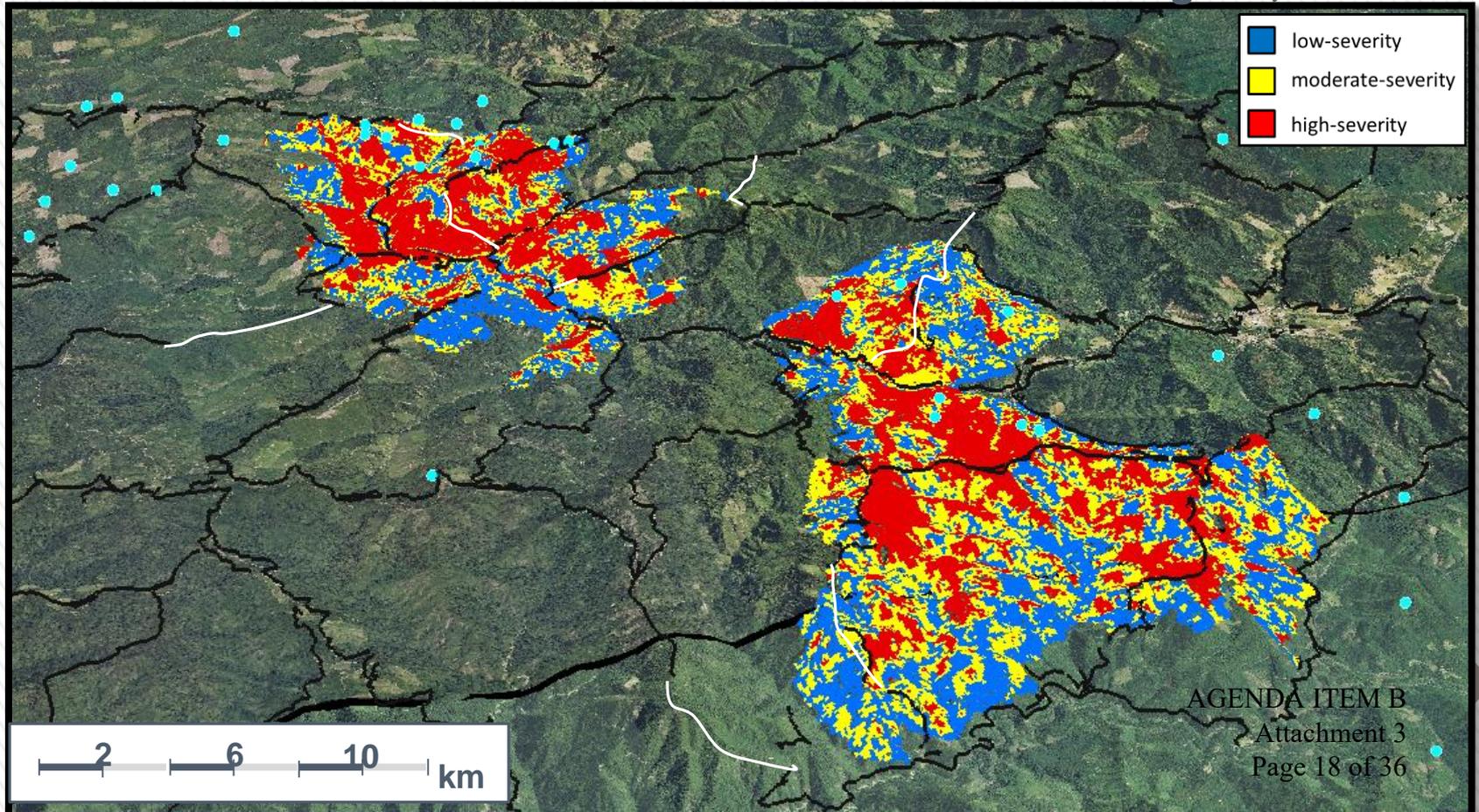
Cumulative area: 13,819 ha

Aug. 3<sup>rd</sup>, 2013



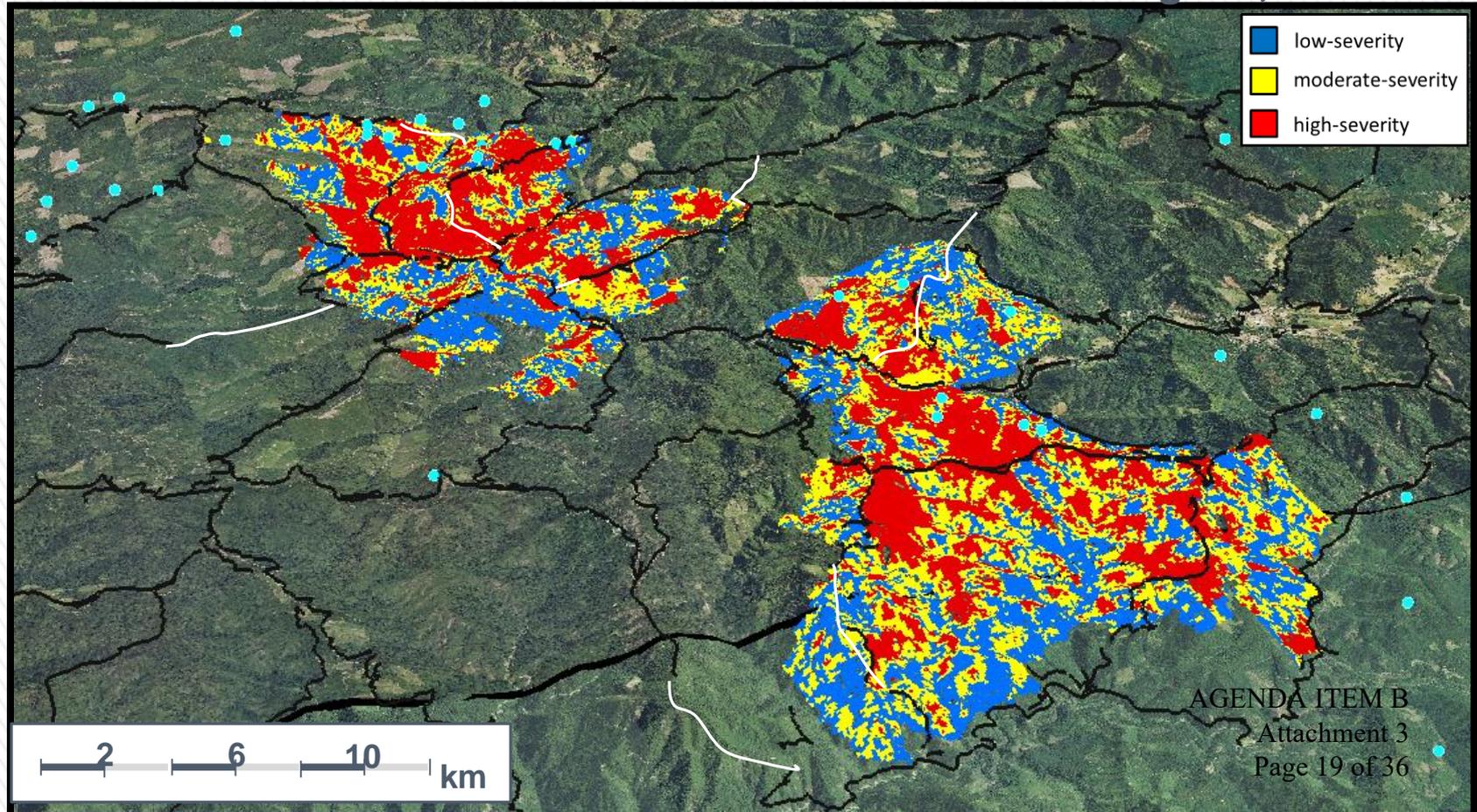
Cumulative area: 14,718 ha

Aug. 4<sup>th</sup>, 2013



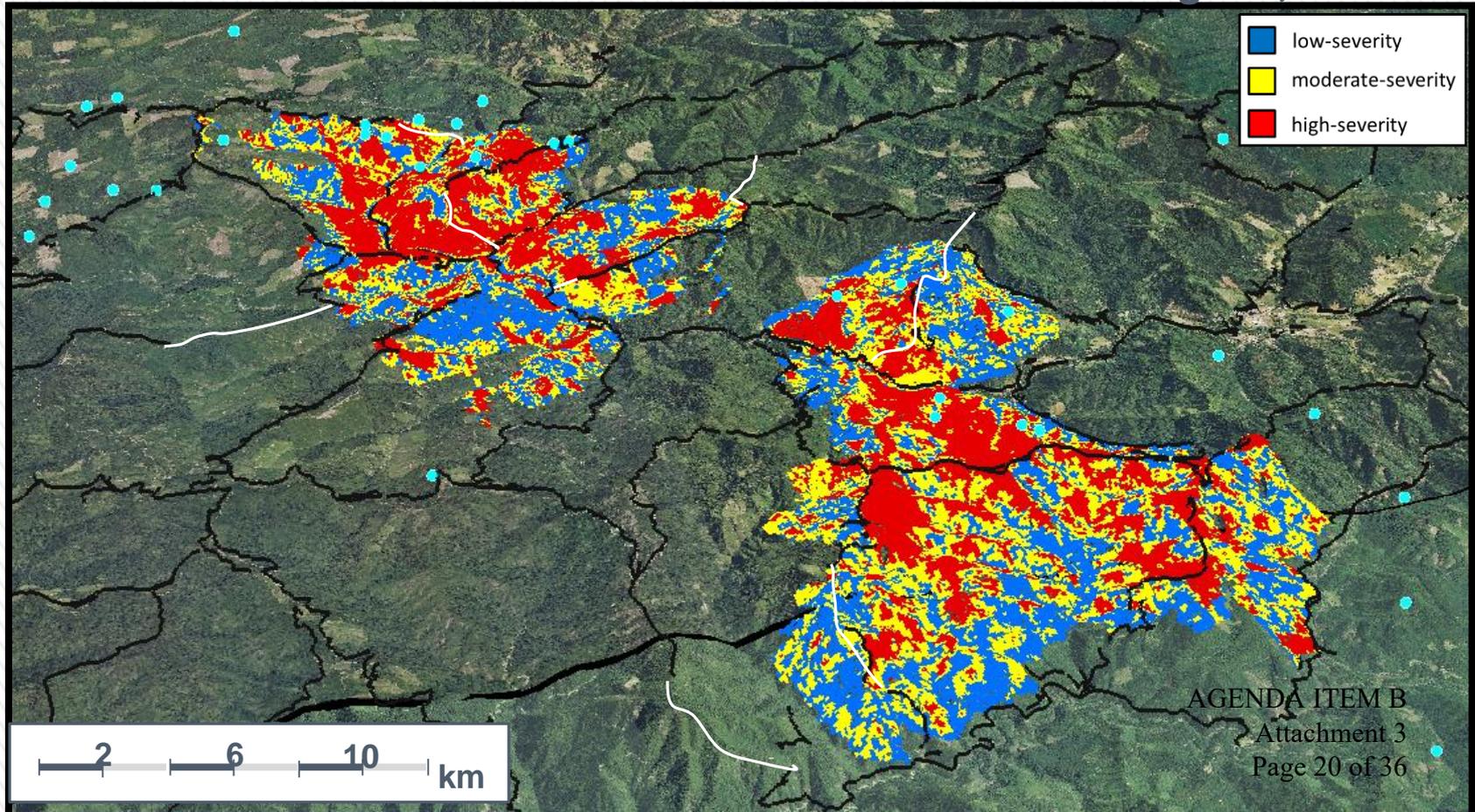
Cumulative area: 15,452 ha

Aug. 5<sup>th</sup>, 2013



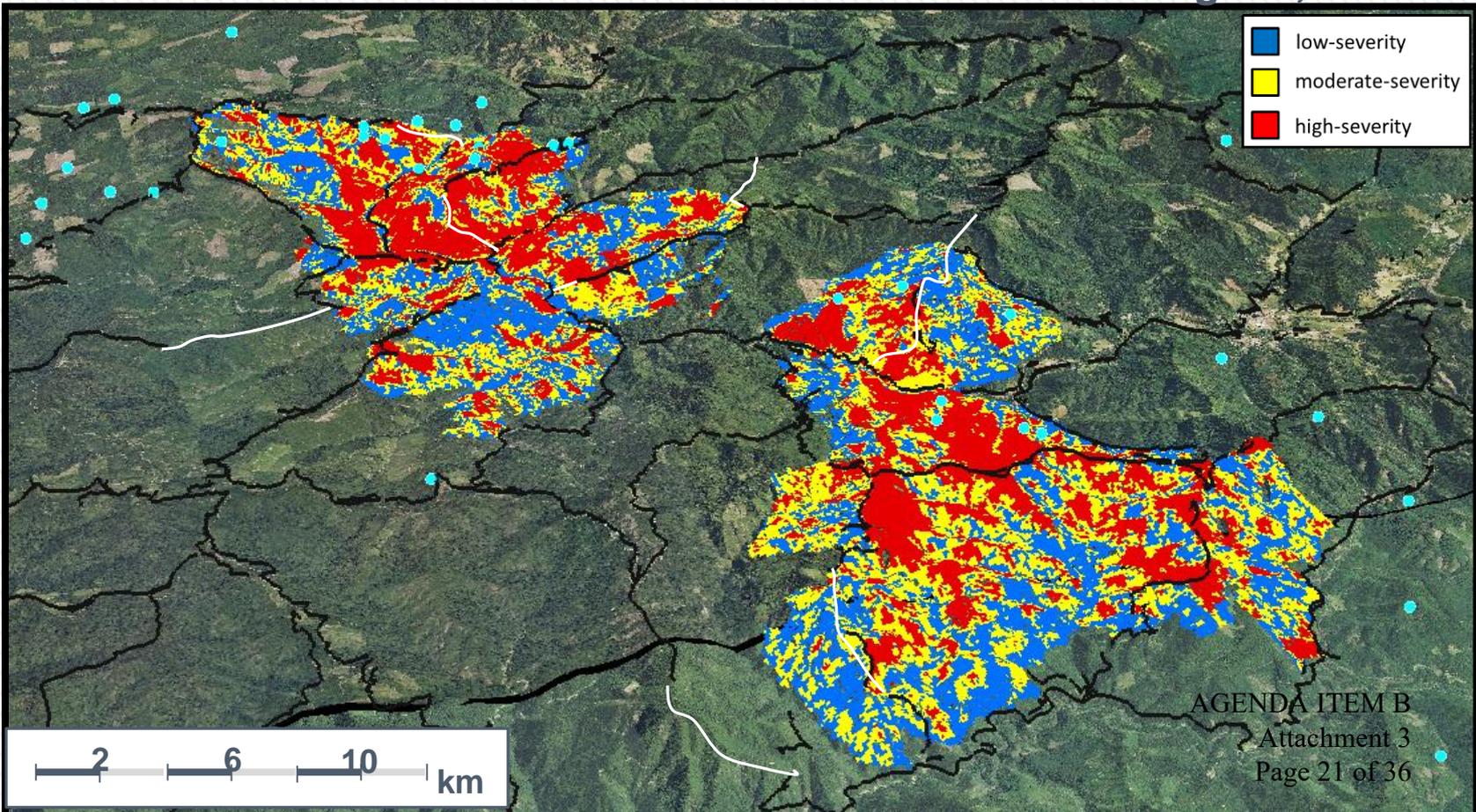
Cumulative area: 16,208 ha

Aug. 6<sup>th</sup>, 2013



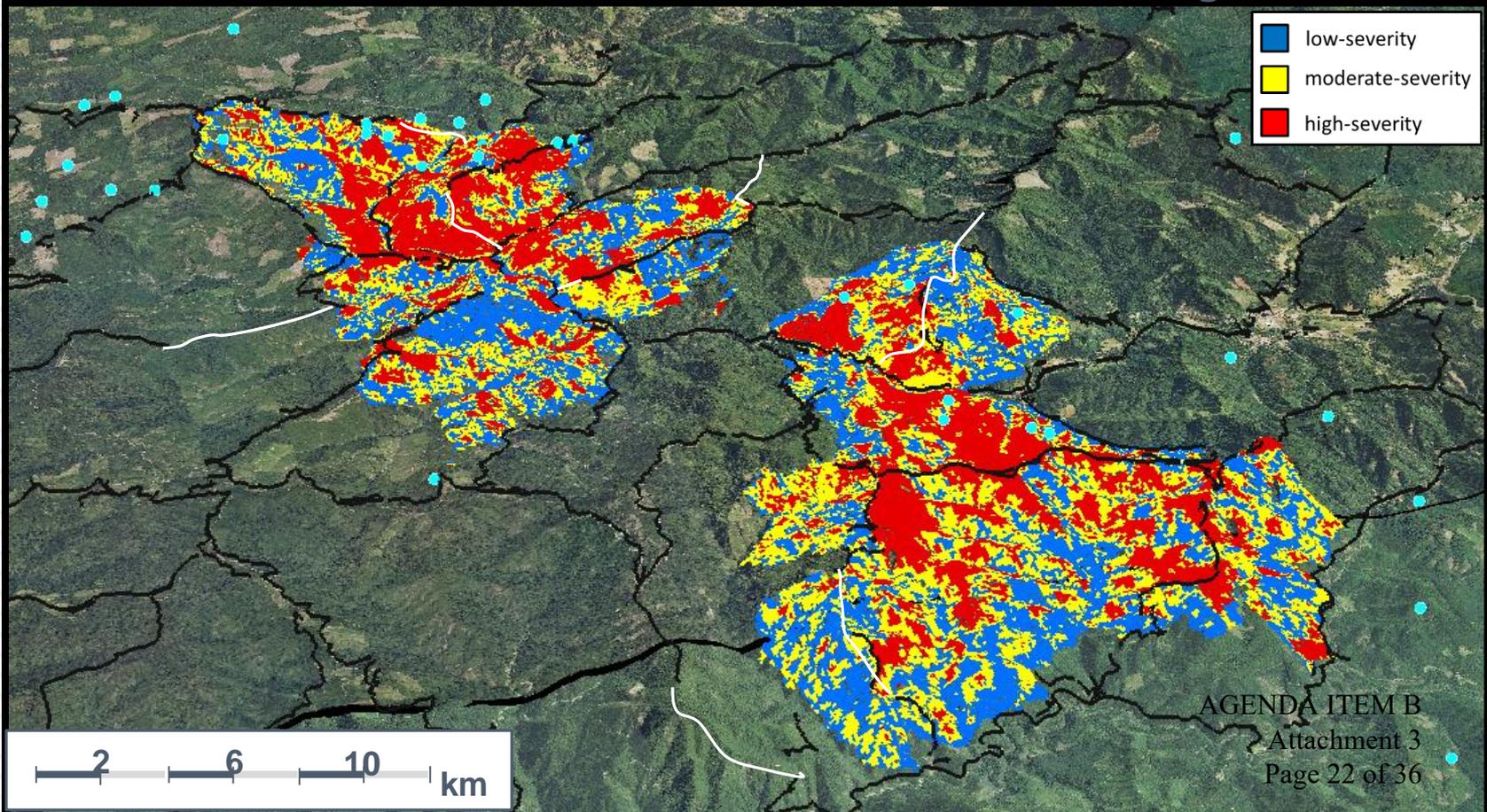
Cumulative area: 17,262 ha

Aug. 7<sup>th</sup>, 2013



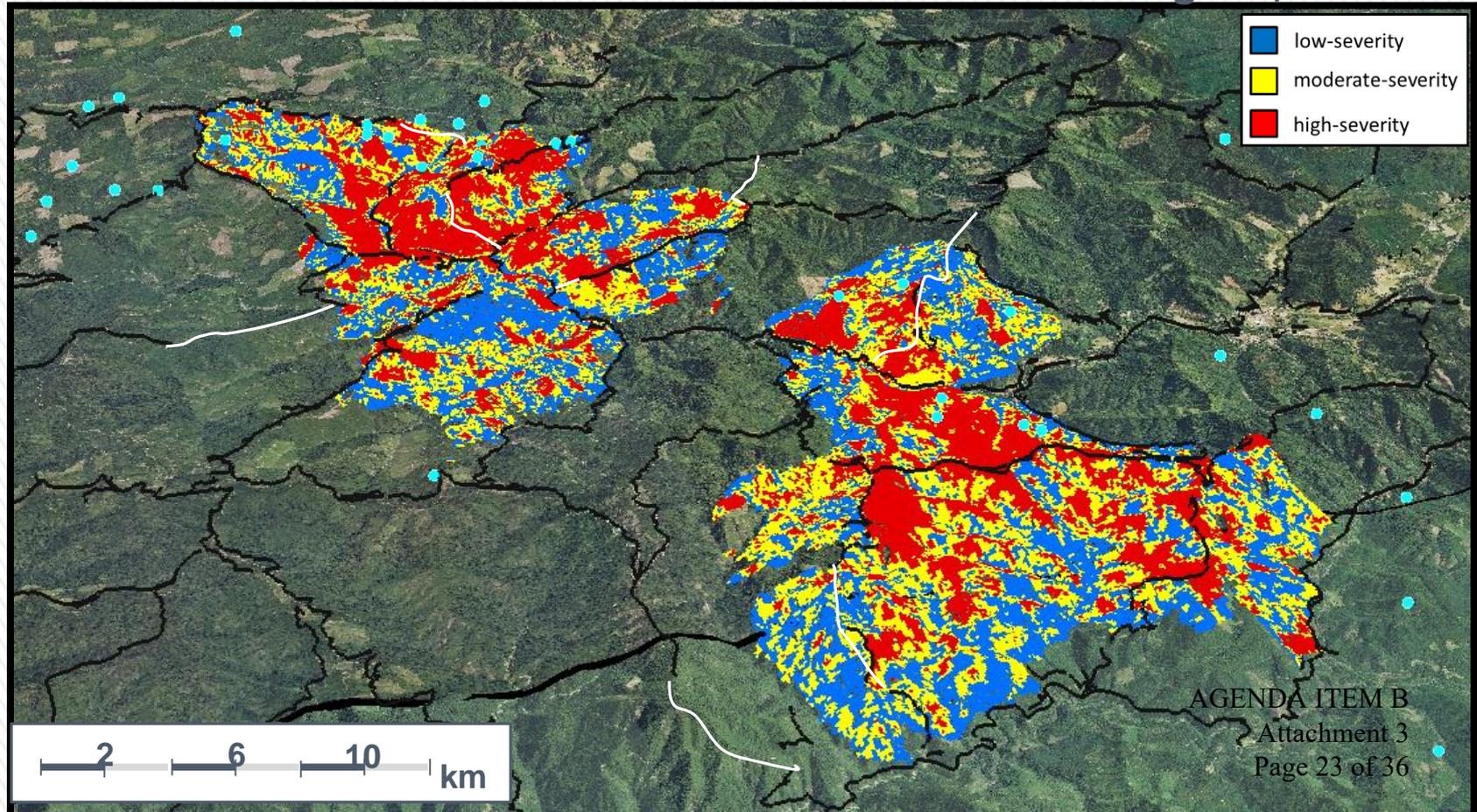
Cumulative area: 17,829 ha

Aug. 8<sup>th</sup>, 2013



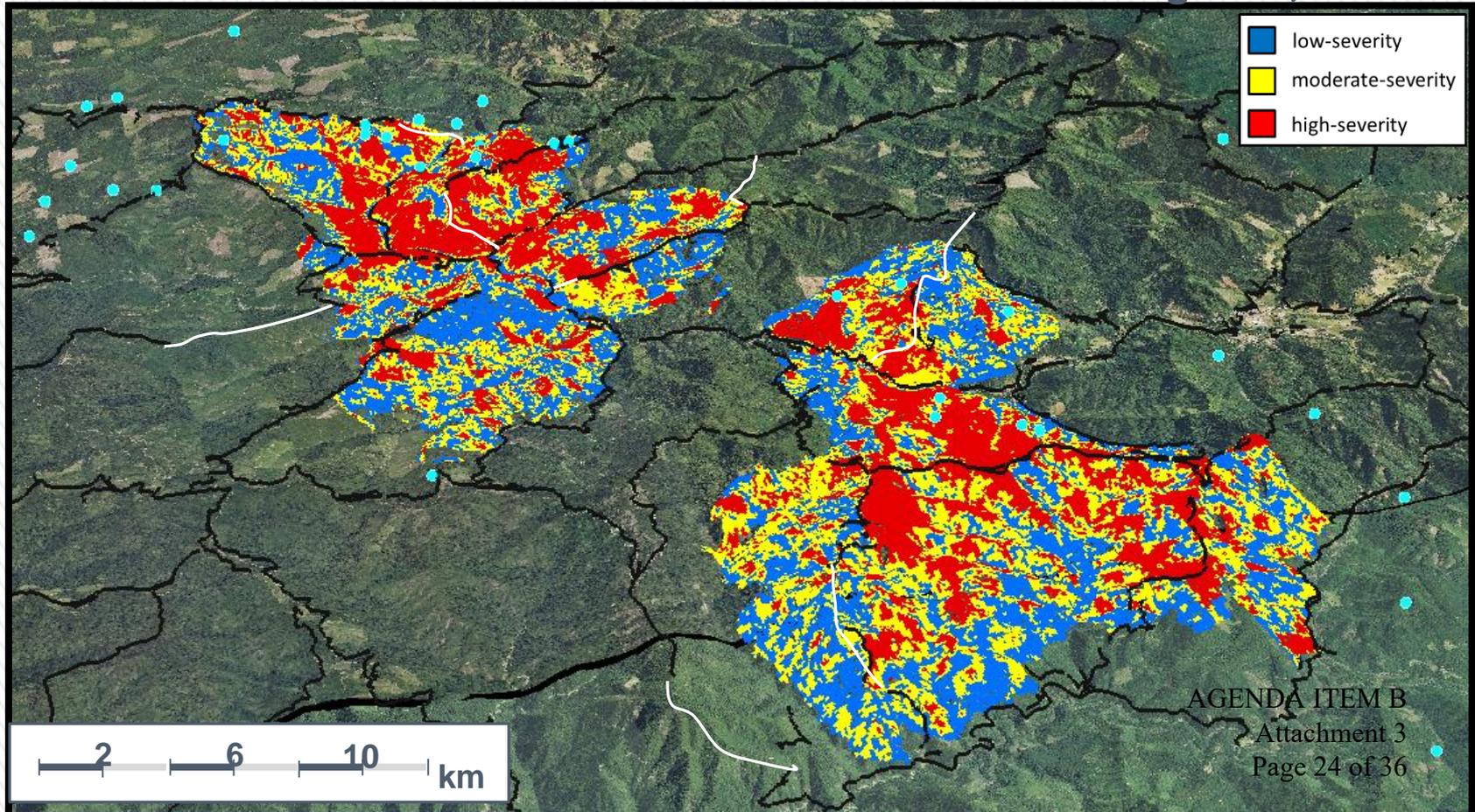
Cumulative area: 17,997 ha

Aug. 9<sup>th</sup>, 2013



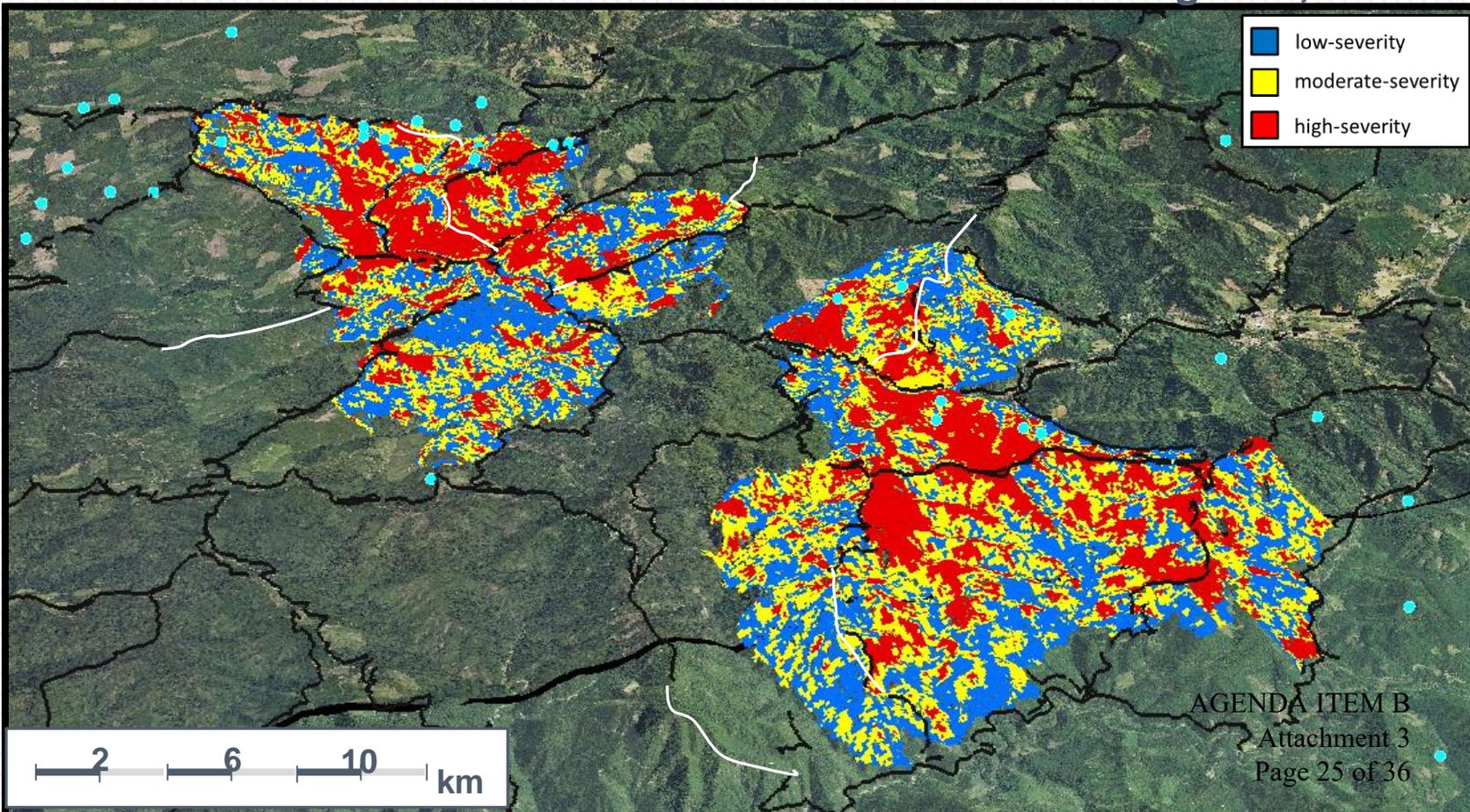
Cumulative area: 18,386 ha

Aug. 10<sup>th</sup>, 2013



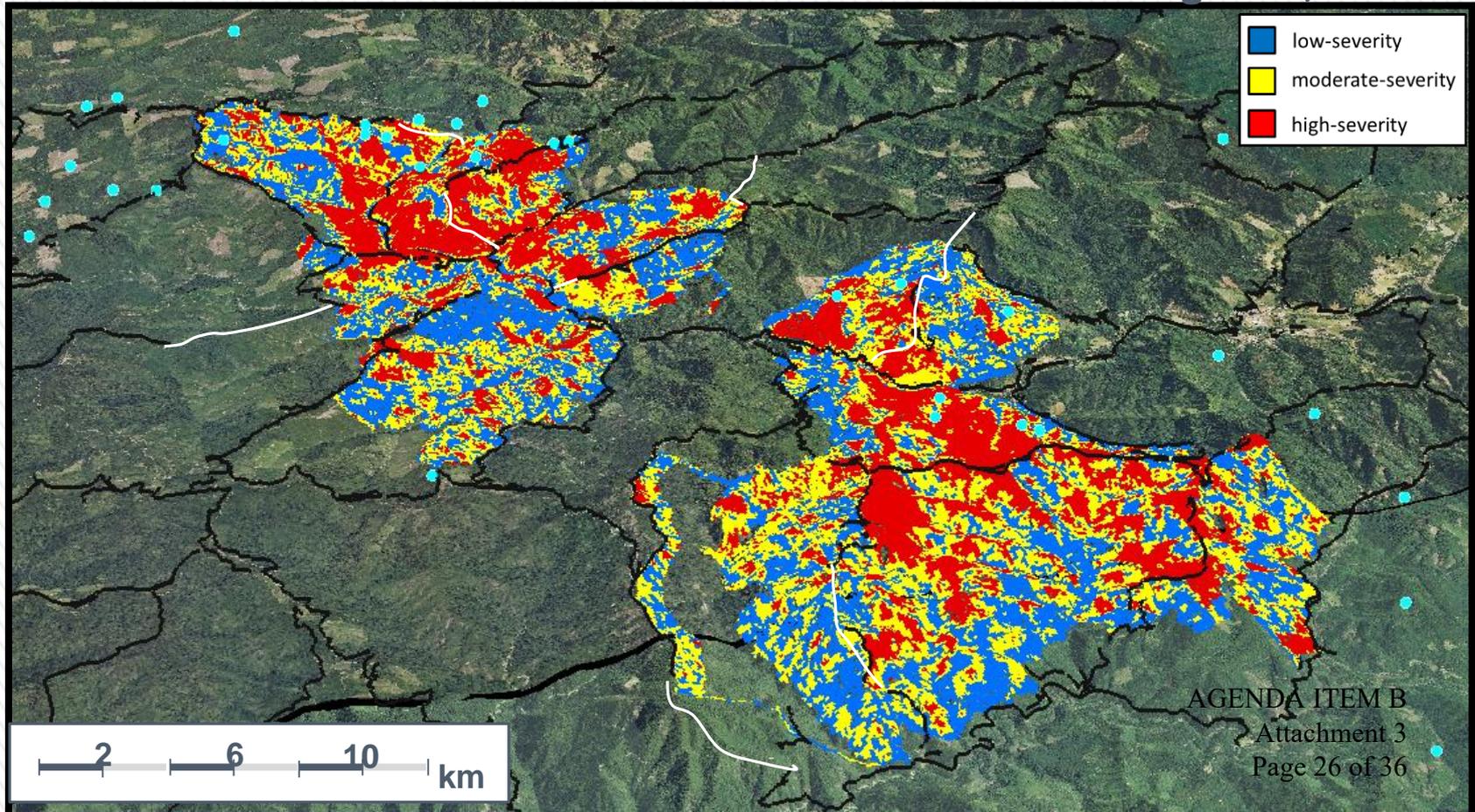
Cumulative area: 18,415 ha

Aug. 12<sup>th</sup>, 2013



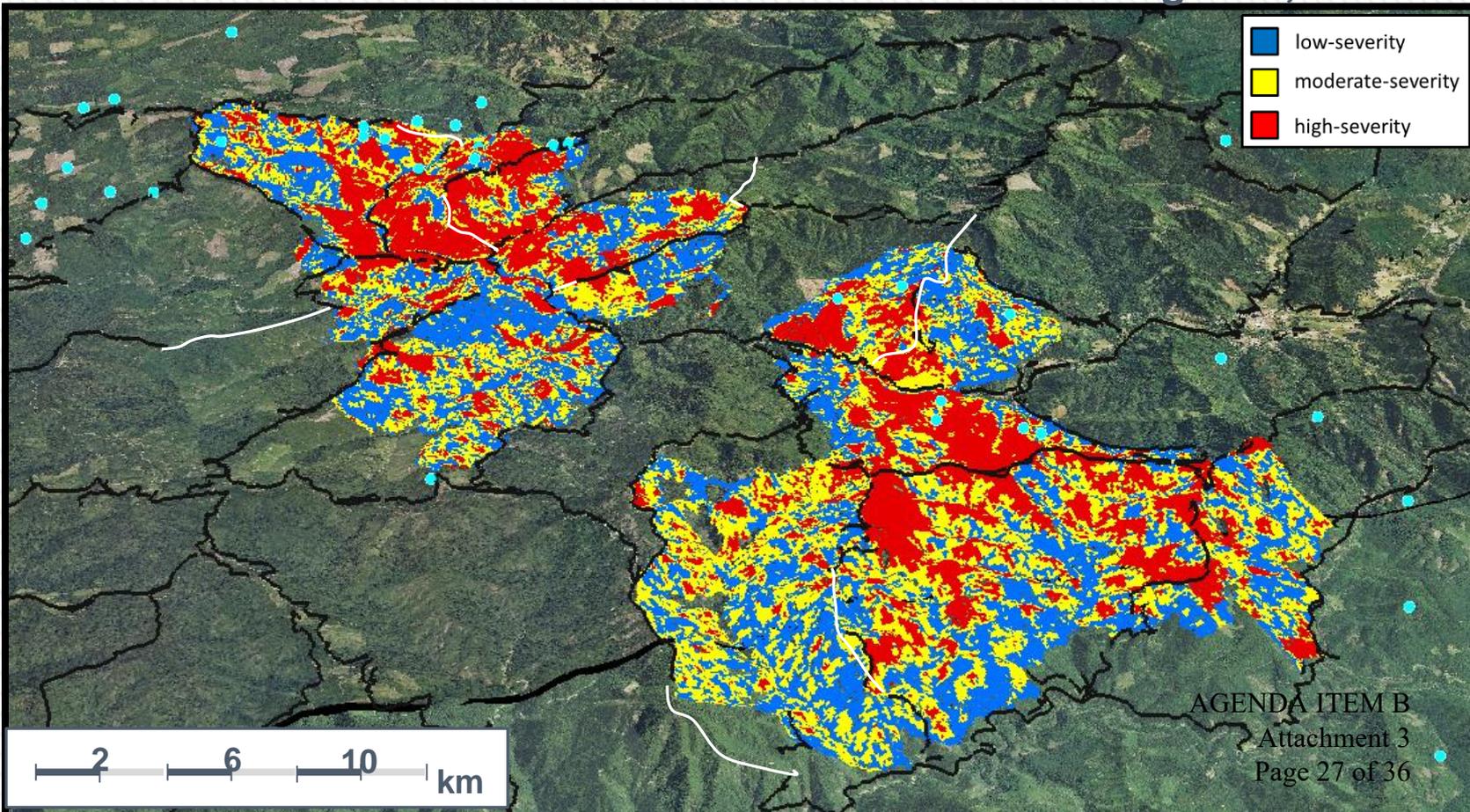
Cumulative area: 18,986 ha

Aug. 15<sup>th</sup>, 2013



Cumulative area: 19,590 ha

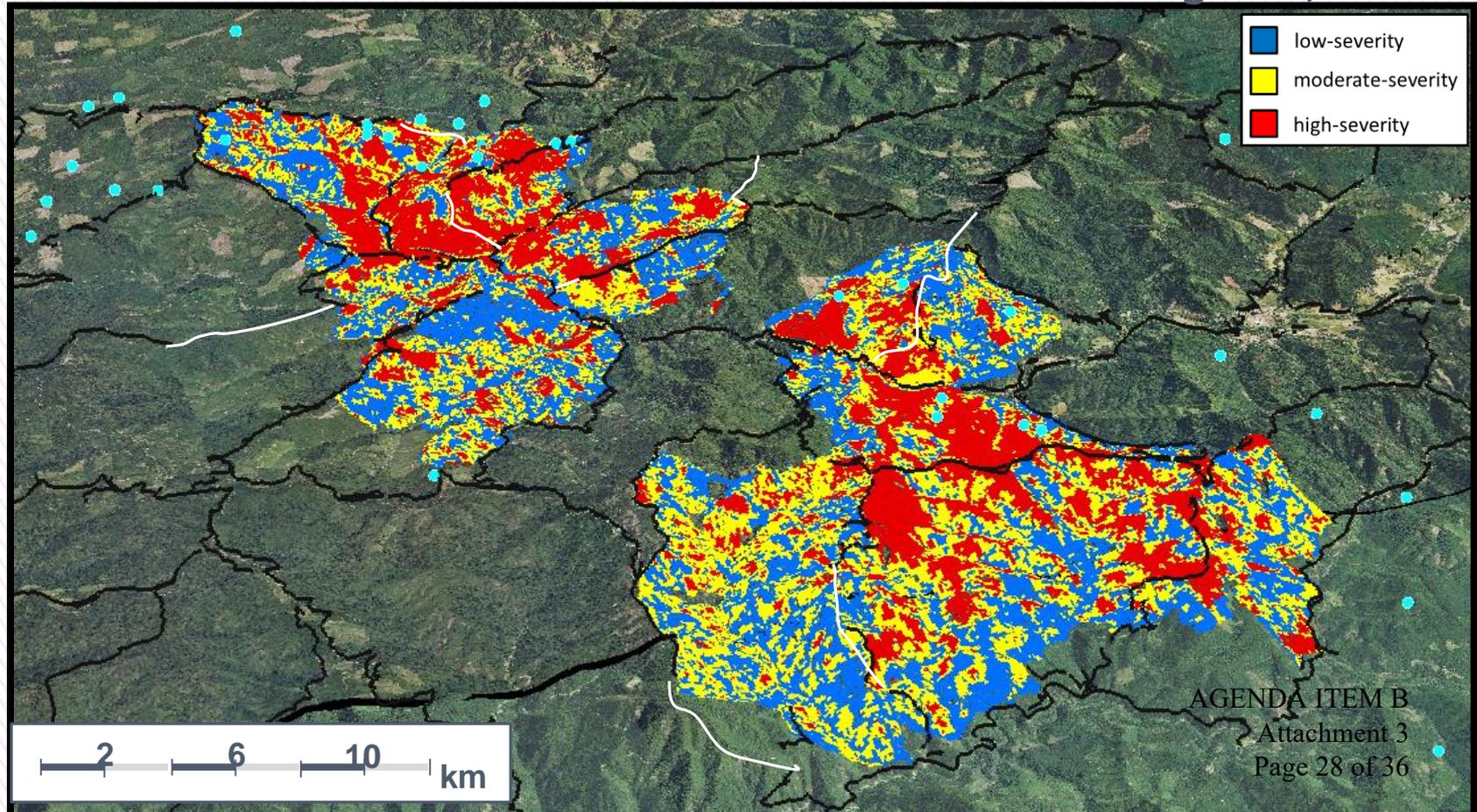
Aug. 18<sup>th</sup>, 2013



# Final perimeter

Cumulative area: 19,709 ha

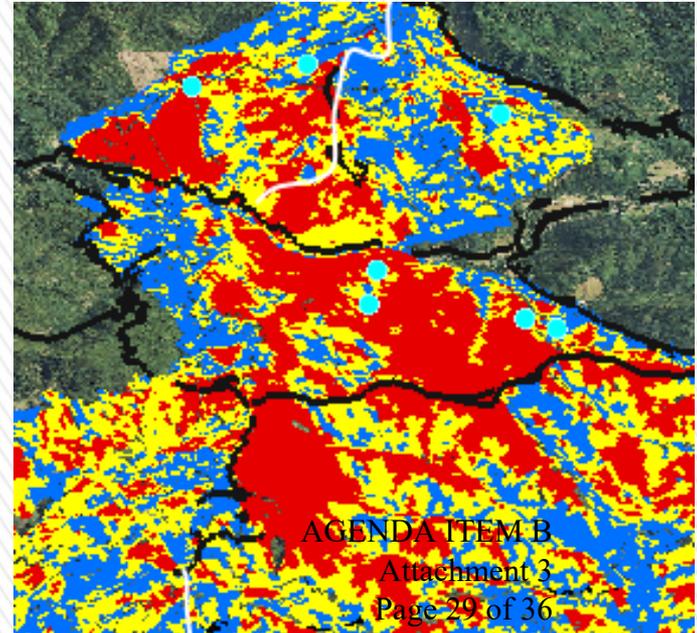
Aug. 20<sup>th</sup>, 2013



# Large firesheds WILL burn

Big planning 'lift' ...culturally and socially, but...

- » They will burn anyway!
- » Keeping the 20<sup>th</sup> Century paradigm just means larger percentages in higher severity and greater losses



# Bottom Line – the Reality

1. Ours forests were resistant/resilient for millennia, but we changed that... *oh well.*
  - Fire ecology can be a guide into an uncertain future
2. Wildland fire is going to happen
  - Fire behavior tools and predictability; risk maps
3. Humans will have to adapt to wildland fire
  - Planning, building, maintaining and evacuating; a cohesive strategy
  - Smoke and flame choices





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# Bottom Line – Call to Action

## 1. Adaptive management with good silviculture

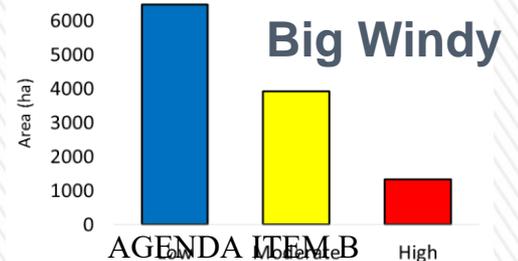
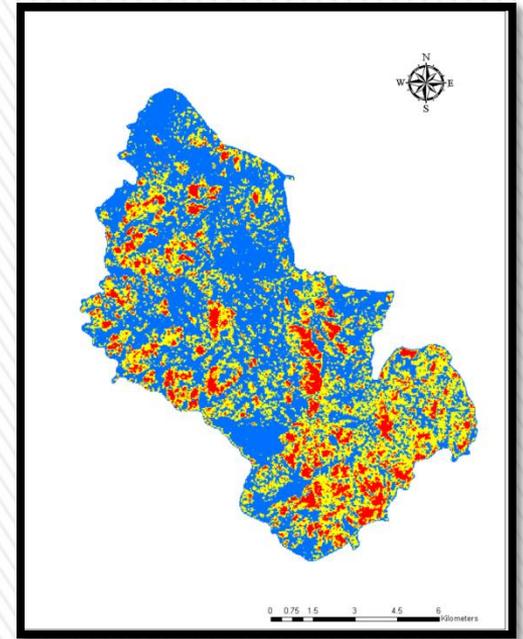
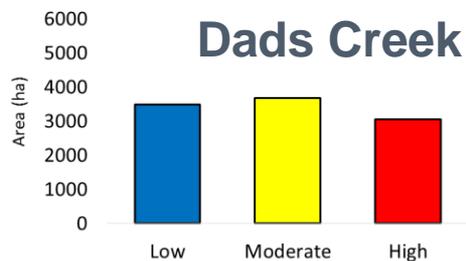
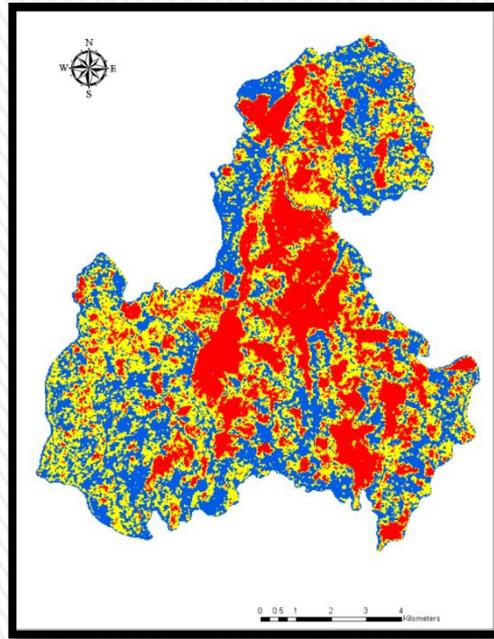
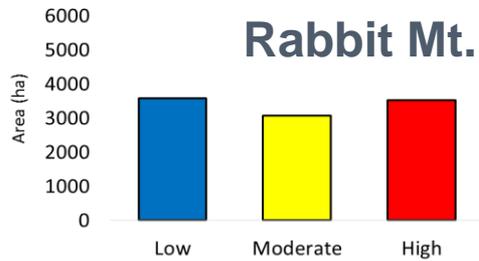
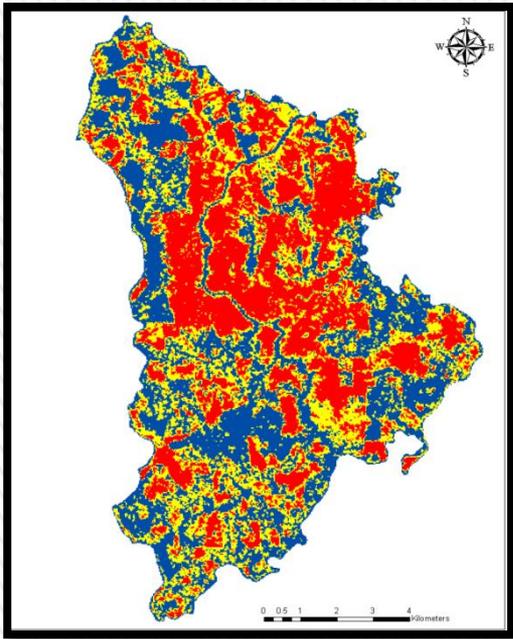
Information/technology is no longer limiting; we have more tools than ever with which to work on solutions: mechanized equipment, models, and PODs

## 2. Collaboratives; think scales up to landscapes, including public and private lands

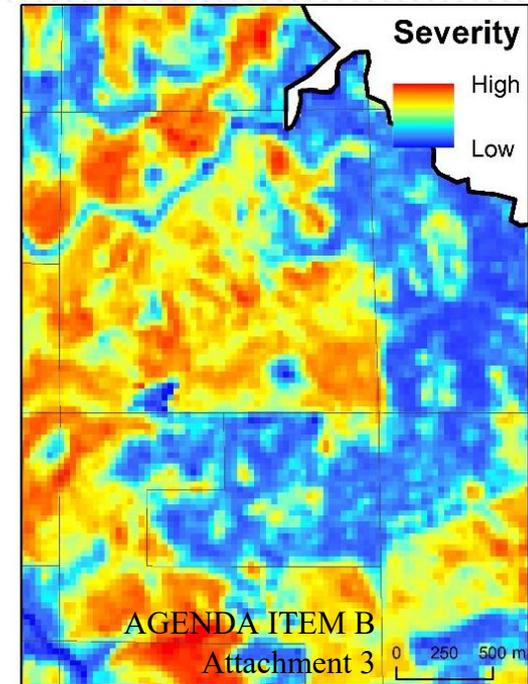
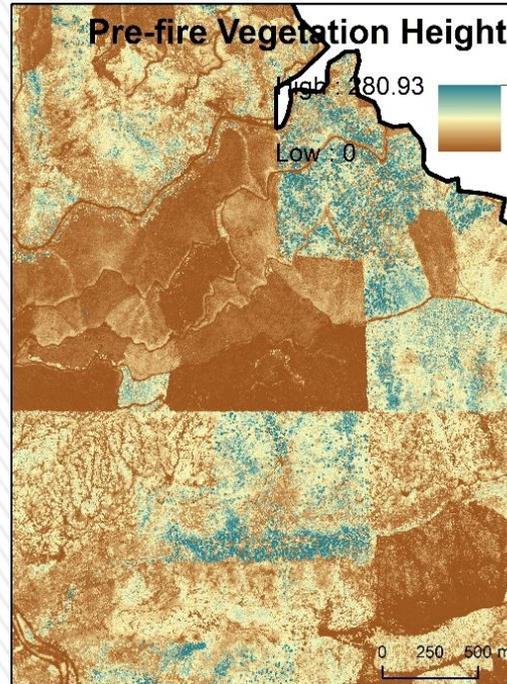
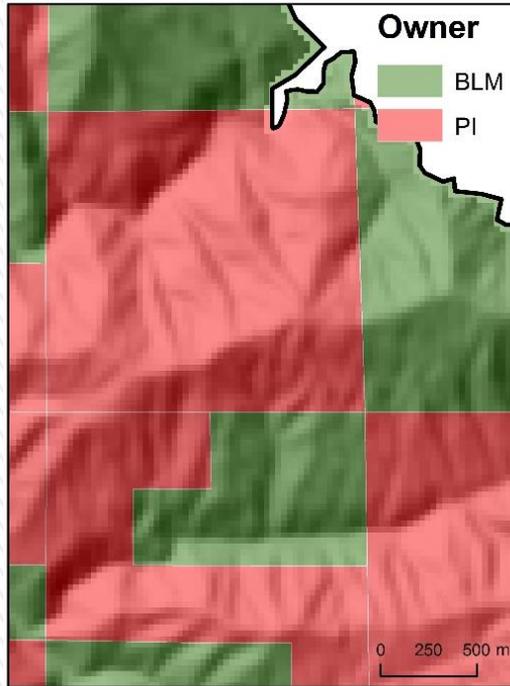
## 3. Recognize the need for change

- > We risk making (will make) mistakes
- > Doing nothing risks everything

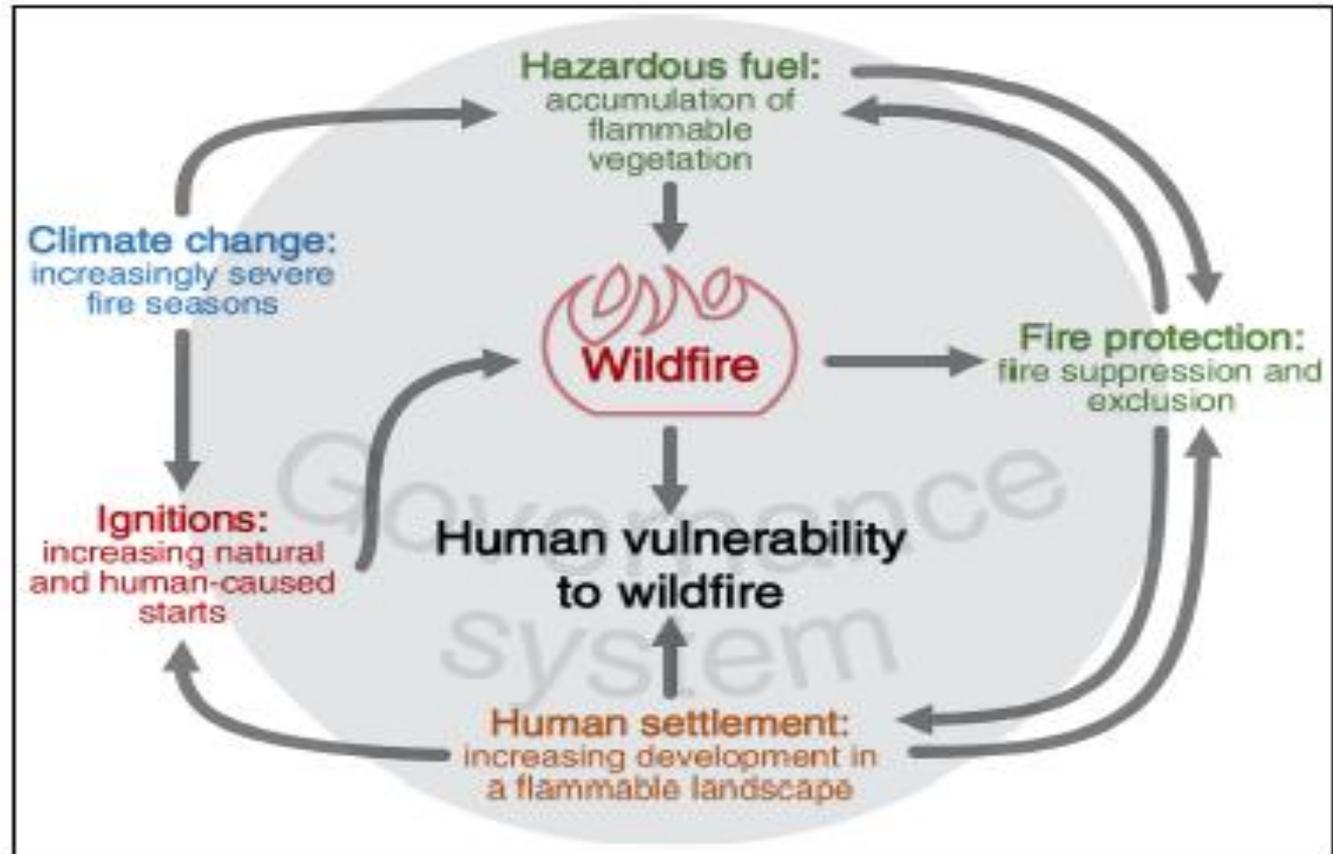




# Next steps – cross-boundary fire risk transmission



**“Pathology”  
is blocking  
progress**



*Fischer et al. 2016  
Frontiers in  
Ecology 14(5)*

*Figure 1. Wildfire risk in fire-prone temperate forests is a result of interacting positive feedback loops that link wildfire and human vulnerability through key drivers of land use and natural resource management.*