

Thresholds in Land Use Planning

Alberta Land Institute

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Regional Plans

- Define economic, environmental, and social outcomes for a region in relation to land-use
- Translate provincial policies related to land/ environment to each region's unique circumstances
 - Clean Air Strategy, Energy Strategy, Water For Life Policy,
- Lower Athabasca Regional Plan – 2012
 - Addresses Oil Sands and environmental balance
- South Saskatchewan Regional Plan – 2014
 - Addresses watershed, Eastern Slopes, grasslands conservation strategies with growing population

Seven Land-use Regions and Plans

Based on major watersheds and municipal boundaries

Topics:

- Economic contribution of land uses
- Conservation of valued landscapes
- Cumulative effects management
- Managing impacts to Indigenous values
- Recreation Areas & Trails

Lower Peace Regional Plan:

Upper Peace Regional Plan:

Upper Athabasca Regional Plan:

South Saskatchewan Regional Plan:
Effective September 2014



Lower Athabasca Regional Plan:
Effective September 2012

North Saskatchewan Regional Plan:
Development initiated

Red Deer Regional Plan:

Cumulative Effects *(LUF Policy 2008)*

- *‘The combined effects of past, present, and reasonably foreseeable land-use activities, over time, on the environment’*
- Management of cumulative effects is a recognition of the finite capacity of Alberta’s airsheds, watersheds, and landscapes
- “....an emerging practice, an art not a science....should be used pragmatically not dogmatically.”

Environmental Management Frameworks

Plan Outcomes and Objectives

Indicators
Triggers
and Limits

- Indicators are chosen
- Triggers and limits (thresholds) are set






Monitoring
and
Modeling

- Monitor and assess ambient conditions relative to triggers and limits

Management
Response and
Reporting

- Exceeding triggers or limits requires a response
- Results reported

Status of Management Framework Development

	Lower Athabasca	South Saskatchewan	North Saskatchewan
Air Quality	✓	✓	
Surface Water Quality	✓	✓	
Groundwater Quality & Quantity	✓	Groundwater Management Approach / Framework Template	
Biodiversity			
Surface Water Quantity	✓		
Tailings	✓		

How Thresholds Are Set?

- **Part of the Regional Plan process – technical team drafts indicators, thresholds and review with stakeholders and Indigenous people – 2-3 sessions**
- **Cumulative Effects Policy Context:**
 - **Need to manage effects to within limited environmental carrying capacity to meet environmental outcomes in a region**
- **Thresholds are a policy choice – balancing environmental science with economic and social considerations**
 - **Consider regional development forecasts for energy, forestry, and community growth**
 - **For air and water – use guidelines for human health and ecosystem requirements as the basis for limit values**
 - **For biodiversity – current condition compared to expected condition free of human footprint**

Thresholds: two types

- **Limits**

- An upper value that should not be crossed
- Based on established guidelines or standards
 - E.g. Alberta Ambient Air Quality Objectives - CAAQs

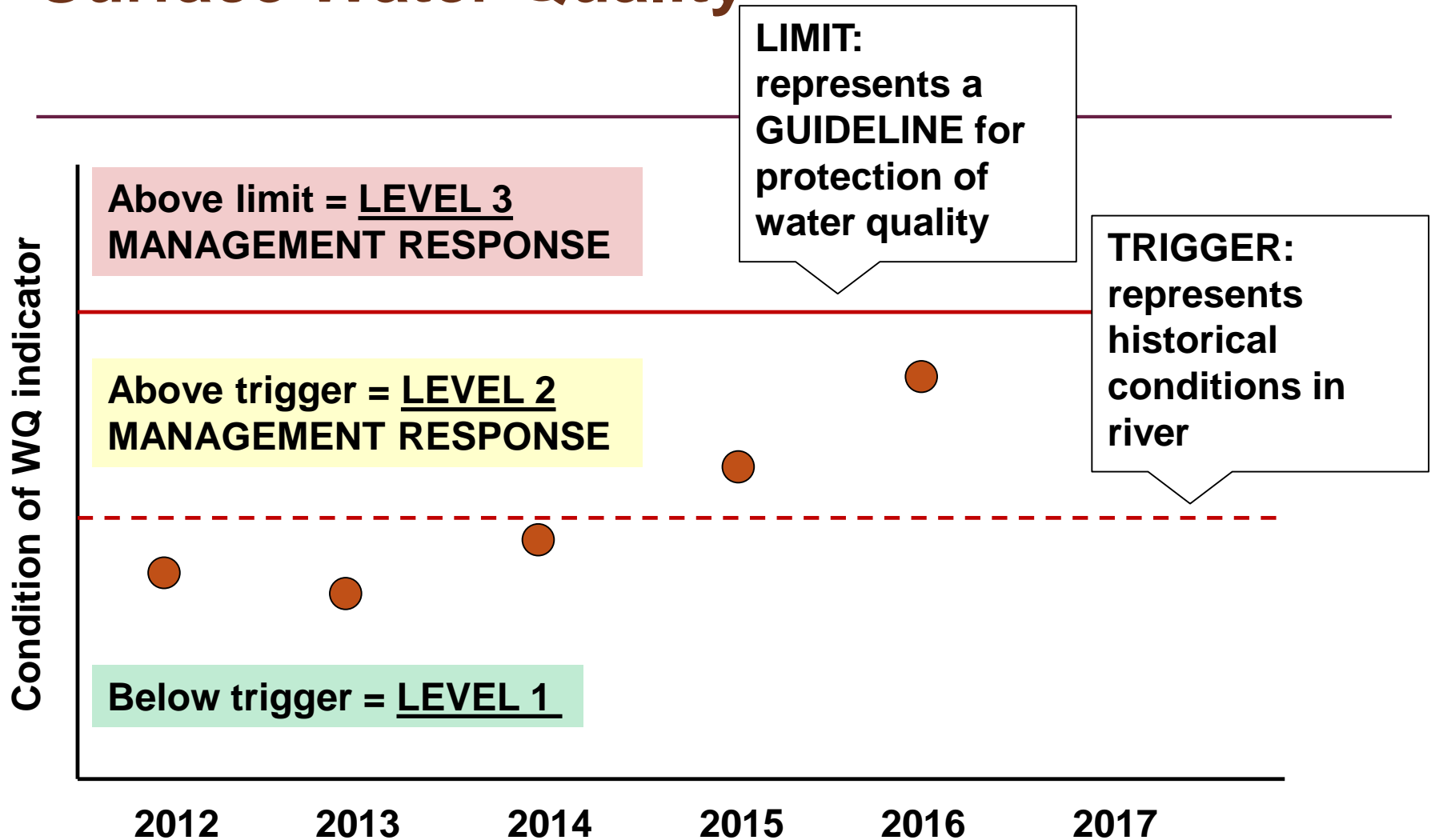
If a limit is crossed, the regional outcome may not be achieved -- environmental conditions are unacceptable

- **Triggers**

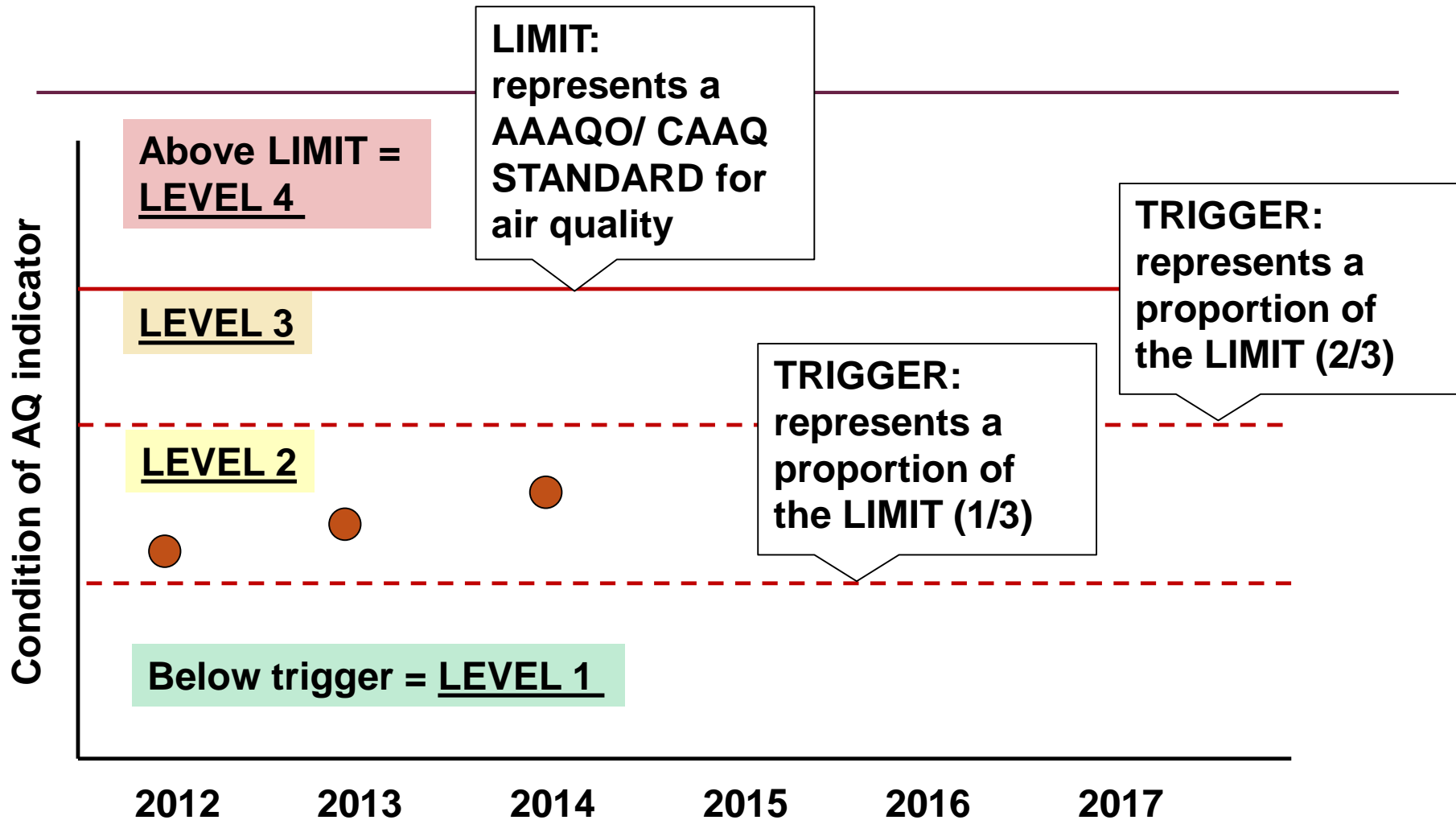
- Early warning signals
- Derived in one of three ways:
 - Deviation from historic condition
 - Proportion of limit (e.g. 1/3, 2/3)
 - Deviation from current condition

If a trigger is crossed, environmental condition may be trending in an undesirable direction

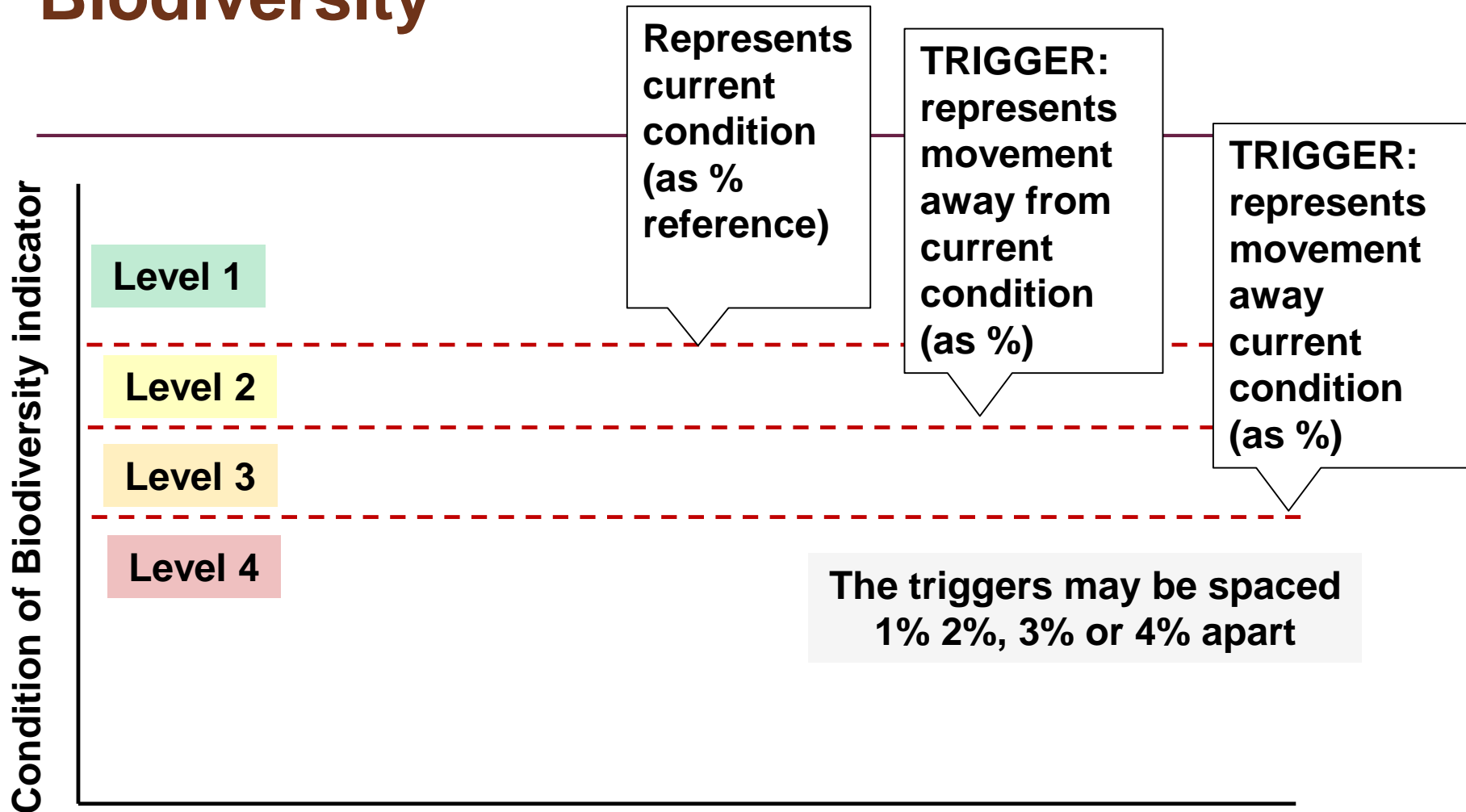
Surface Water Quality



Air Quality



Biodiversity



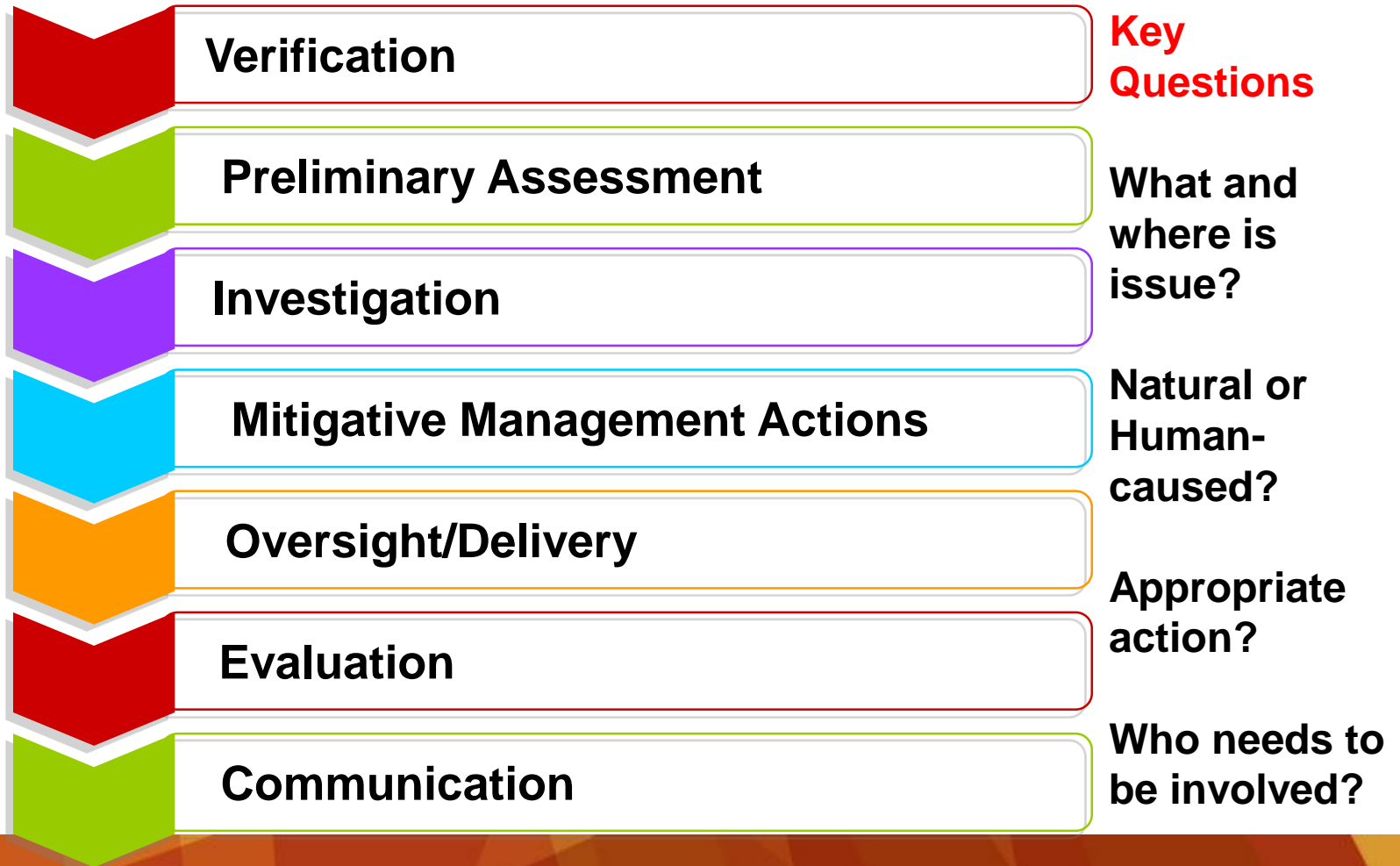
Biodiversity Framework Triggers

- **Limits not considered appropriate given our emerging knowledge of biodiversity**
 - This doesn't change the need to undertake the most significant management responses available if the 3rd trigger exceeded (level 4)
- **Assess current condition of biodiversity as compared to a reference condition - expected condition of an indicator when not influenced by human footprint.**
 - Consider the risk categories to define risk to species and ecosystems from the International Union for Conservation of Nature (IUCN)
 - The greater the departure between current condition and reference condition, the greater the risk and the less tolerance for change between trigger levels – 1% tolerance for high departure/ risk, 4% tolerance for low departure/ low risk.

Management Response

- A management response is a set of steps that will be undertaken if the monitoring data shows an exceedance of a threshold (trigger or limit) value set for that indicator
- Part of the management response is determining the need, if any, for management actions.
- Management actions will become more stringent if an indicator moves into higher threshold levels
- Environment & Parks will lead the process but work collaboratively with those who can effect change, and those who make related land-use decisions (eg. AER, AF, Municipalities, forest / energy industry)

The Management Response Steps



Management Response Spectrum

Mitigation Hierarchy



Management Responses become more stringent when trigger levels are exceeded



Examples of Management Actions

Avoidance measures

- Education and awareness
 - **Cows and Fish**
- Best management practices

Reduction/mitigation measures

- Vehicle Idling bylaws
- Operating standards for industry

Restorative measures

- Sub regional planning to reduce land disturbance or manage motorized access
- Lowering fish & wildlife harvest levels

Offset measures

- Mandatory reclamation prior to approval of further operations

How Can Planners Work with Thresholds?

- **Know the Regional Plan for your area, and related environmental outcomes, objectives and strategies**
 - **Municipal Planners – specific land-use policies found in regional plans)**
 - **Know the Environmental Management Frameworks for the region – separate documents with greater detail**
- **Be aware of the status of air quality, water quality, and biodiversity in the region**
 - **Annual reporting – available online. May include management response reports**
 - **Know the emission sources, management responses (if applicable) and related land use drivers of emissions (eg. Forestry, oil/gas, municipal infrastructure).**

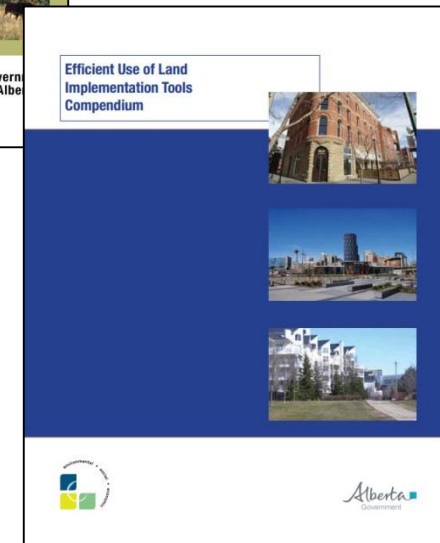
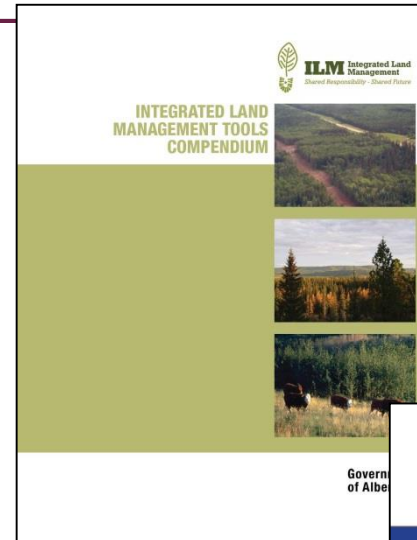
How Can Planners Work with Thresholds?

- **Participate in Regional Planning, Environmental Framework , and Management Response processes**
 - **Share development plans and ideas for mitigation**
 - **Assess and apply tools in your area of control to reduce emissions (air and water) or improve biodiversity**
 - Education and outreach initiatives
 - Incorporate key management actions into your plans (municipal, forestry, or energy development plans)
 - Example:. Plan development around key wetlands, riparian areas, and other key biodiversity features

Key Resources

- **Integrated Land Management Tools Compendium**
 - **Tools to reduce footprint on public land**

- **Efficient Use of Land Compendium**
 - **29 voluntary best practices to reduce the amount of land required for development of private and municipal lands**



Questions?