

PNW Quantitative Wildfire Risk Assessment (QWRA) Update

Ana Barros

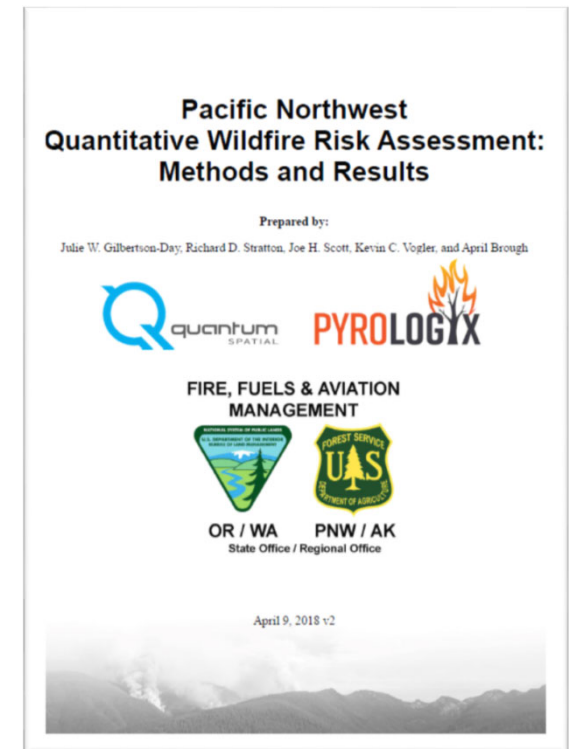
November.17.2022

Olympia, WA



What is the QWRA?

- 🔥 All-lands, comprehensive wildfire risk assessment
- 🔥 The first assessment was released in 2018
- 🔥 The 2023 update will account for changes in the landscape and will take advantage of improved risk analysis methods
- 🔥 Applications include:
 - Integration of wildfire risk with natural resource planning
 - Fire response analytics
 - Community wildfire protection planning
 - Pre-season fire planning (e.g. PODS)



Who is leading the update?

- 🔥 Chris Dunn | Oregon State University
- 🔥 Ian Rickert | US Forest Service
- 🔥 Andy McEvoy | Oregon State University

With collaborators from:



Oregon State
University



What is risk?

Risk = Hazard x Vulnerability

- 🔥 Wildfire risk to a selected group of things we care about (HVRAS)
- 🔥 HVRA's have different relative importance
- 🔥 It's a product -> if one of the parcels = 0, there is no risk.
- 🔥 Expressed as Expected Net Value Change (ENVC)
- 🔥 ENVC can increase, decrease, or stay the same

Highly Valued Resources & Assets



People and Property

Where people live by density class

USFS private inholdings



Infrastructures

- Electric transmission lines – high and low voltage
- Seed Orchards
- Sawmills
- Historic Buildings
- High and low developed recreation sites
- Communication sites and cell towers
- Interstates and highways
- Ski Areas
- Railroads



Vegetation Condition

Seral state departure by FRG group



Wildlife

- Northern Spotted Owl
- Steelhead trout
- Chinnok Salmon
- Sage Grouse Habitat
- Lahontan cutthroat trout
- Bull Trout
- Redband trout
- Coastal cutthroat trout
- Coho Salmon
- Marbled murrelet



Watersheds

Watersheds



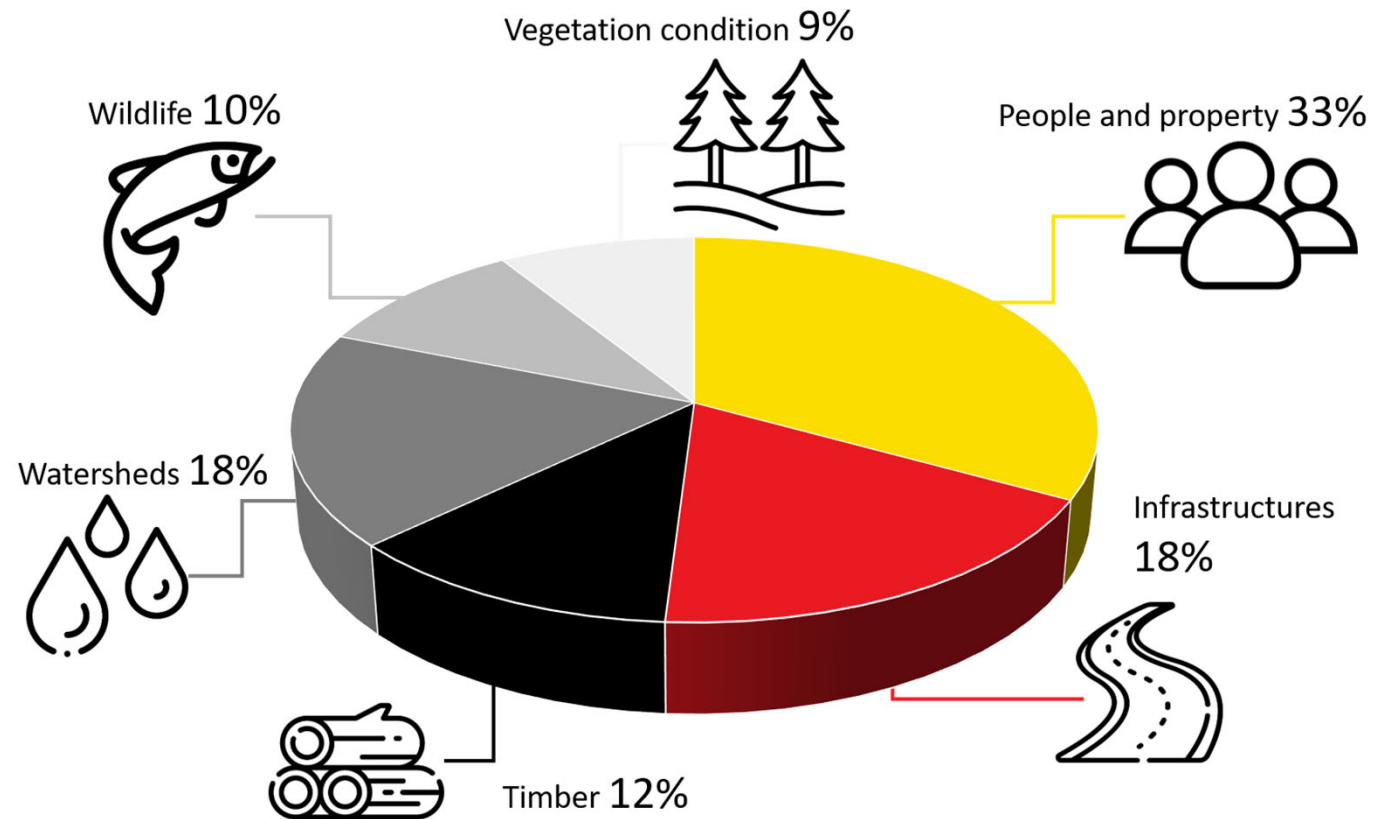
Timber

- Tribal Owned/Colville Reservation Commercial Timber
- USFS active management & NWFP matrix lands
- BLM Harvestable Potential
- Private industrial
- State Owned for OR and WA

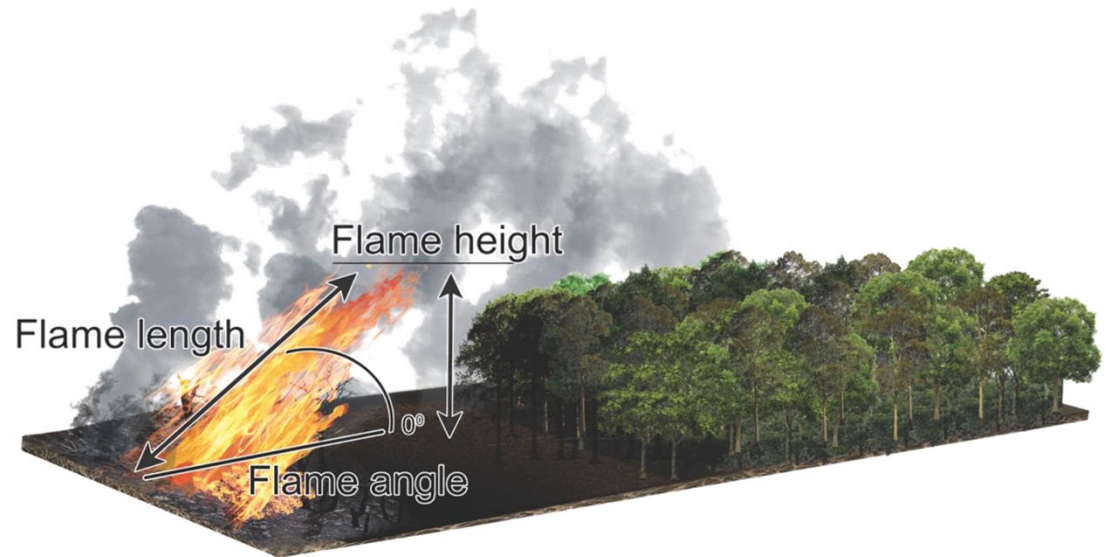
What do we value?

Relative importance of HVRAS

What do we value the most?



Hazard x Vulnerability



Burn probability (frequency)

How often does fire burn through a certain piece of ground?

Flame length (intensity)

How bad does it get?

Hazard x Vulnerability



	Flame length (different fire intensities)					
Sub-HVRA	0-2' feet	2-4'	4-6'	6-8'	8-12'	12'+
FRG 1 QMD<10	10	-20	-50	-100	-100	-100
FRG 1 QMD 10-20	50	30	0	-30	-75	-100
FRG 1 QMD<10	40	30	0	-10	-50	-100

Exposure

Do hazard and HVRA overlap?

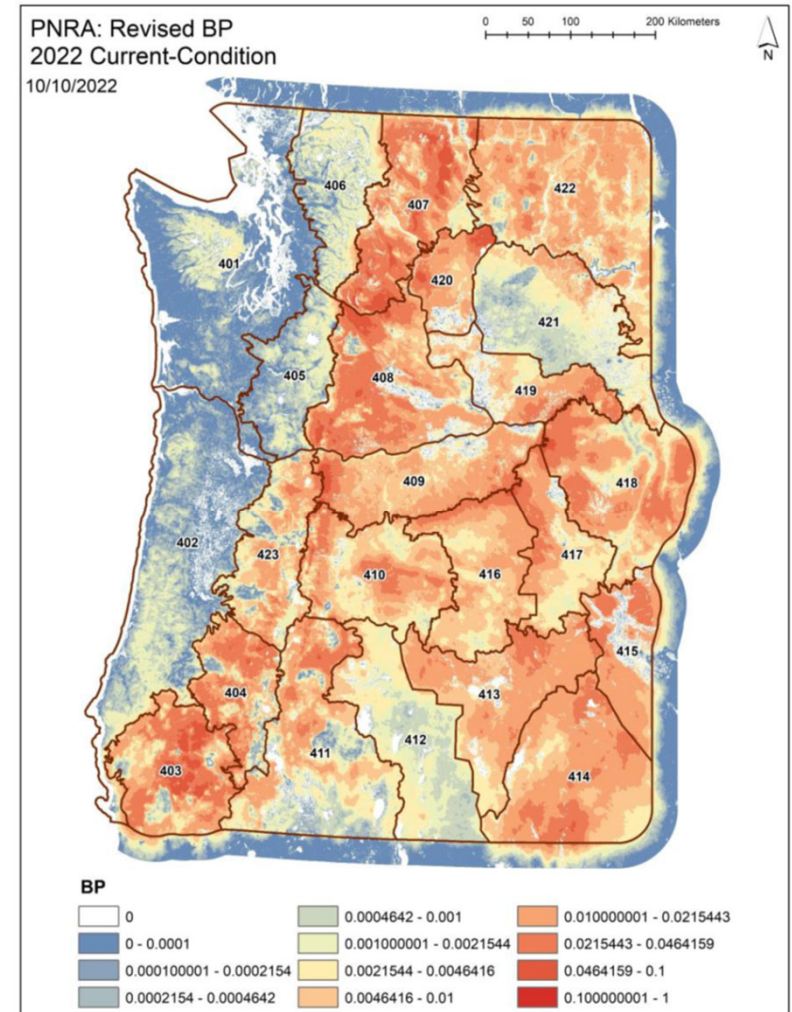
Susceptibility

How does HVRA value change at different fire intensities?

CHANGES TO THE HAZARD COMPONENT

Changes to hazard

- 🔥 Pyrologix LLC. is modeling updated fire behavior and occurrence data which will be the foundation of the updated risk assessment
- 🔥 Modeling accounts for significant changes on the landscape since 2018 - fuel treatments on state and federal land + wildfires
- 🔥 Burn probability (intensity) is completed
- 🔥 Fire intensity (flame length) will be modeled in a slightly different process than the previous QWRA intended to improve estimates of fire behavior (January 2023)



PROPOSED CHANGES TO
HVRAS



Infrastructures



People and Property



Wildlife



Vegetation Condition



Timber



Watersheds



Agriculture

Electric transmission lines – high and low voltage

Seed Orchards

Sawmills

Historic Buildings

High and low developed recreation sites

Communication sites and cell towers

Interstates and highways

Ski Areas

Railroads

Where people live by density class

USFS private inholdings

Structure footprint data to identify the location and # of structures

Northern Spotted Owl

Steelhead trout

Chinnok Salmon

Sage Grouse Habitat

Lahontan cutthroat trout

Bull Trout

Redband trout

Coastal cutthroat trout

Coho Salmon

Marbled murrelet

Seral state departure by FRG group

Add rangelands + Map only on public and protected private

Tribal Owned/Colville Reservation Commercial Timber

USFS active management & NWFP matrix lands

BLM Harvestable Potential

Private industrial

State Owned for OR and WA

Watersheds

Perennial crops

Annual crops

Grazing

Forestry seed orchards

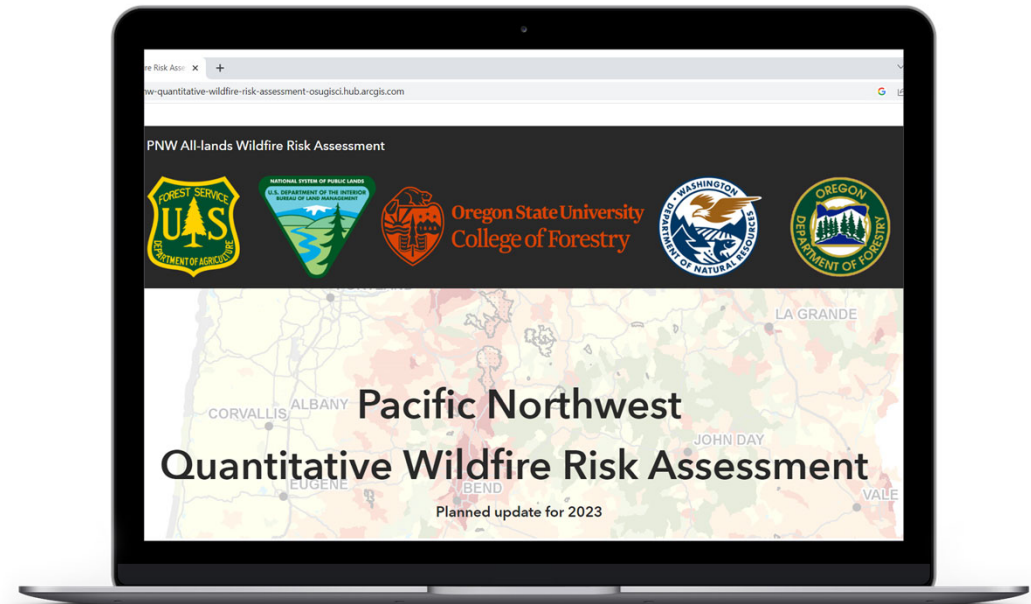
New HVRA being added to the updated version

AVAILABLE RESOURCES

Project webpage

PNW All-lands Wildfire Risk Assessment (arctgis.com)

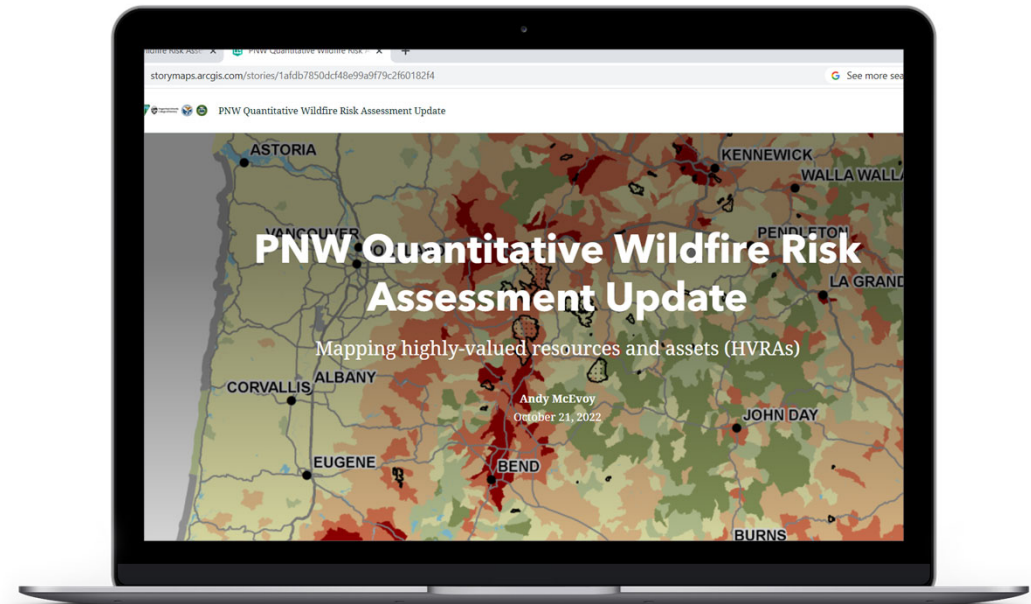
*Includes link to the mailing list for
project updates*



HVRA storymap

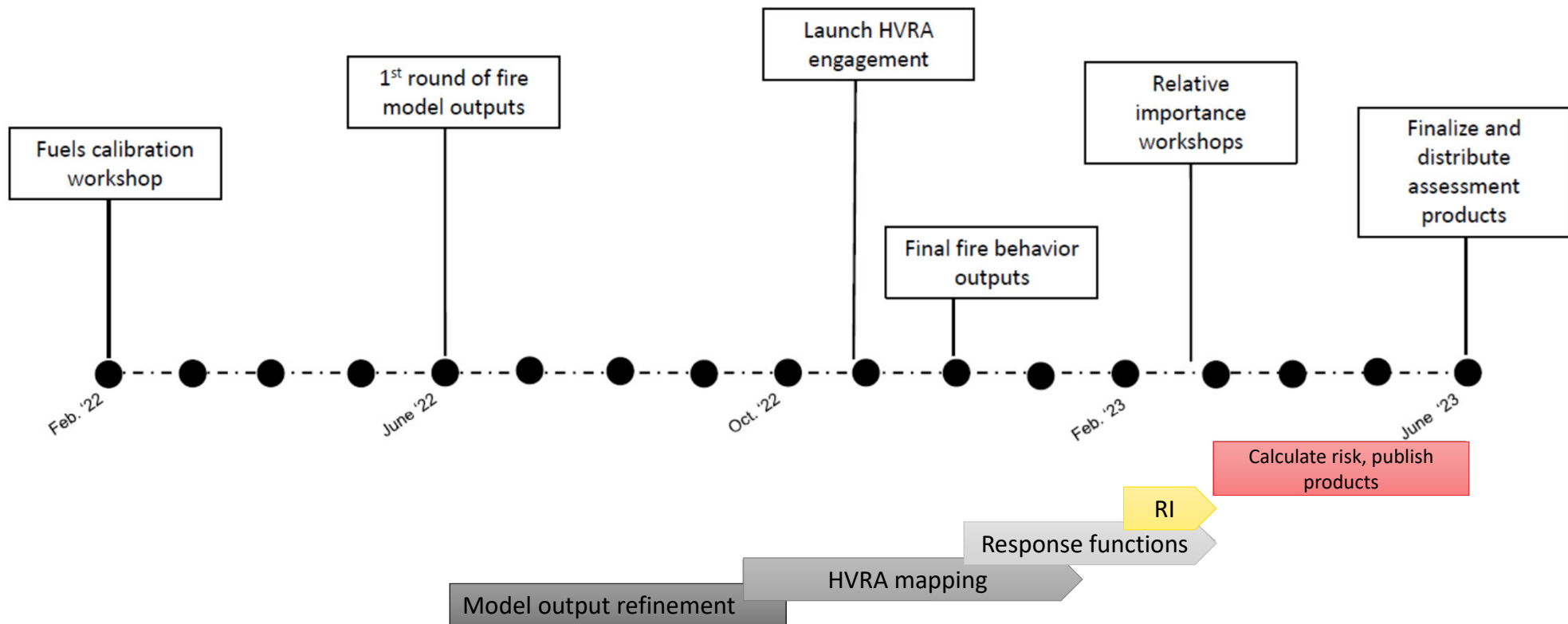
PNW Quantitative Wildfire Risk Assessment Update (arcgis.com)

*Includes link to provide feedback on
HVRA proposed changes and
mapping*



TIMELINE & STAKEHOLDER ENGAGEMENT

Timeline



HVRA DEVELOPMENT

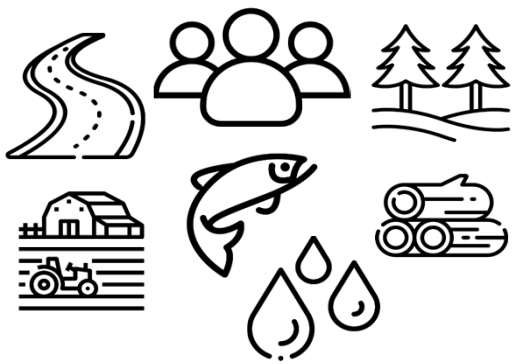
RESPONSE FUNCTIONS

RELATIVE IMPORTANCE

Now!

The story map and feedback form can be widely distributed allowing stakeholders to weigh in on the development of a final list of HVRA's.

Late February or March
The lead team will convene state and federal agency leaders to finalize a relative importance scheme. One agency representative.



HVRA DEVELOPMENT

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January

The lead team will convene subject matter experts from state and federal agencies to develop response functions for the final list of HVRAs.

February/March

The team will convene state and federal agency leaders to finalize a relative importance score for each HVR.



Sub-HVRA	Flame length (feet)					
	0-2'	2-4'	4-6'	6-8'	8-12'	12'+
X	10	-20	-50	-100	-100	-100
Y	50	30	0	-30	-75	-100
z	40	30	0	-10	-50	-100

HVRA DEVELOPMENT

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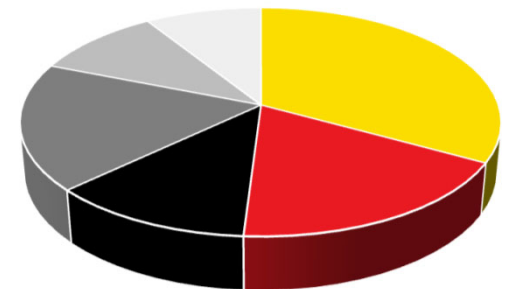
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THANKS!

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