# Wildfire on Indian Forests

# A Trust Crisis

Vincent Corrao
John Bailey
John Gordon
Adrian Leighton
Larry Mason
Mark Rasmussen
John Sessions

**The Intertribal Timber Council (ITC) asked the Indian Forest Management Assessment Team, those listed above, to investigate the following five topics and provide statements regarding the 2015 fire season:**

1. DOI BAER plan estimates of rehabilitation costs - is the methodology appropriate and are cost estimates reasonable?
2. Previous IFMAT warnings about the consequences of failing to provide adequate resources to fulfill fiduciary trust responsibilities
3. The need for timely action to minimize environmental damage from the 2015 wildfires.
4. The need to harvest the timber damaged by wildfires to recover as much value as possible.
5. Other losses, such as impact on future timber supply, jobs, etc.

**Our answers were derived mainly from the study of BIA, Tribal, and other material from five Indian forest locations: Colville, Nez Perce, Spokane, Warm Springs, and Yakama. We greatly appreciate the assistance of the BIA, Tribal, and other sources.**

# Contents

# Executive Summary

We investigated the five topics posed by the Intertribal Timber Council regarding the impacts of wildfire on reservations nationwide and focused on five reservations in the West that incurred significant wildfire damage —Colville, Yakama, Spokane, Nez Perce, Warm Springs, and neighboring lands. We found:

- Since the passage of NIFRMA in 1990, 4.8 million acres nationally of Indian forest lands have been burned by wildfire, and the annual losses are only increasing. In 2015, a record 539,000 acres of Indian forests were scorched, nationwide.
- The 2015 fire season burned 338,110 forest acres on the five subject reservations, damaging 1.2 billion board feet of tribal trust timber. The cost and impact to other resource values has not been calculated in this analysis, but can be expected to be many times the cost of suppression.
- The 338,110 forest acres included 126,393 acres of high and moderate severity burns which require reforestation, salvage activities, road restoration and maintenance, fence repairs, resources for lost fish and wildlife, and risk for non-native invasive species and noxious weeds.
- The cost of fire suppression on the 338,110 acres exceeded $97 million. Rehabilitation costs are generally equal to the suppression cost, but can be as much as three times higher. The Department of the Interior has estimated that the cost of rehabilitation for the five subject reservations at $55 million. The study team estimates that actual rehabilitation costs are likely to be over $100 million. Only $8.7 million has been made available to date for rehabilitation; the ability to provide the balance of funding is uncertain.
- The five subject tribes suffered $521 million in timber losses as a result of the 2015 wildfires.
- Three times in the past twenty plus years, Indian Forest Assessment Teams (IFMATs I, II, III) have issued warnings about the dire current and future consequences of chronic federal failure to provide adequate resources to Indian forestry programs, which were mandated by Congress in 1990 with passage of the National Indian Forest Resources Management Act (NIFRMA) to fulfill fiduciary trust responsibilities. This is especially urgent with respect to fire and fire management.[1]

---

[1] NIFRMA

Sec. 302 Congress finds and declares that … (3) existing federal laws do not sufficiently assure the adequate and necessary trust management of Indian forest lands;

Sec. 304 (4) Forest land management activities' means… (D) protection against losses from wildfire, including acquisition and maintenance of fire fighting equipment and fire detection systems, construction of firebreaks, hazard reduction, prescribed burning, and the development of cooperative wildfire management agreements;

Sec. 305 (b) Indian forest land management activities undertaken by the Secretary shall be designed to achieve the following objectives…

(1) the development, maintenance, and enhancement of Indian forest land in a perpetually productive state in accordance with the principles of sustained yield and with the standards and objectives set forth in forest management plans by providing effective management and protection through the application of sound silvicultural and economic principles.

- Throughout all three IFMAT investigations, tribal members consistently reported that protection of Indian forests should be paramount, yet their forests are increasingly in jeopardy.[2]
- DOI/BIA estimated that $55 million was needed from the Office of Wildland Fire Management Burned Area Rehabilitation (OWFM BAR) to fund five years of post-fire recovery from the 2015 wildfires on Indian trust forests nationwide, with $9 million urgently needed in this fiscal year (FY 2016) and into the next 5 years to meet this need. But OWFM has only designated $3.4 million of its $19 million BAR FY '16 budget for Indian trust forest recovery due to a policy (Secretarial Order 3336) that changed the funding mechanism.
- The Department of Interior needs to find the additional resources immediately from non-BIA budgets to fully fund the $9 million needed for Indian forest rehabilitation in FY 2016, and, in addition, must fully fund the remaining four years needed to institute full rehabilitation and recovery, beginning with a request for $13 million needed for FY 2017. The $55 million in funding does not include cost of rehabilitating tribal lands that may be damaged by wildfire in subsequent years.
- Tribes operate their forests using sustained yield, multiple-use principles. This means that the amount of volume harvested annually on a reservation is regulated and consistent from year to year, providing a stable annual revenue stream to the Tribes. However, when a catastrophic fire occurs, it alters that plan and consequently lowers the future cash flow associated with a long-term enterprise. This is exacerbated by delayed salvage or complete loss of timber. The fire losses, if left unmanaged and uncompensated, will have catastrophic impacts on employment, the environment, and social values within tribes a as well as the regions that contain them.
- The BIA has an average reforestation budget of approximately $3.2 million (a budget of $3.2 million would cover planting of less than 11,000 acres as reforestation costs are at least $300 per acre). This funding is earmarked for normal year reforestation activities that do not include catastrophic fire events.

**Based on our answers to the five questions posed by the ITC, our recommendations are:**

- Recognize and treat Indian Forest Trust Lands as "property" when prioritizing suppression resources.
- Establish and maintain a pool of funds and resources for immediate emergency post-fire salvage, rehabilitation, and restoration activities all available within days of final suppression.
- Provide adequate compensation for long-term economic impacts of fires, most of which are not taken into consideration under the present funding system.
- Provide adequate funding to the BIA for preparedness, fuels and prevention.

[2] IFMAT I p. III-3, IFMAT II p.33, IFMAT III Volume II p.19-20

- Re-evaluate the preparedness and fuels treatment risk- based models to give more weight to Tribal trust forestlands and the adjacent federal lands that pose a risk to Tribal lands.
- Fund revision of forest plans for Tribal forests impacted by catastrophic fire.
- Fund Tribal mills to make changes in equipment and production protocols in response to catastrophic fire.
- Obtain fire insurance for Tribal Forest Lands

# Overview

In this accelerated appraisal, we attempt to give our best answers, based on existing and accessible data, to the five questions posed by the Intertribal Timber Council (ITC) regarding the impacts of wildfire on five reservations—Colville, Yakama, Spokane, Nez Perce, Warm Springs, and neighboring lands. The ITC has assembled the experts listed above, all of whom participated in the most recent congressionally-mandated assessment of Indian forests and forestry, The Indian Forest Management Assessment Team III (IFMAT III). Our data sources, listed in more detail in "Literature Cited," consist of tribal fire season summary documents for calendar 2015, government documents from the Interagency Fire Center, the Bureau of Indian Affairs (BIA), and various other federal, state, and local data sources.

The aggregate statistics available for the 2015 fire year demonstrate loss and, in some instances, uncertain or missing resources for recovery of tribal forests. In particular, the threats from burns on adjacent lands that will not be harvested will increase the future fire risk, and the long-term loss of future annual harvest volumes due to fire are particularly worrisome in light of the economic importance of these lands to tribal communities.

The 2015 fire season burned 338,110 forest acres on the five tribe's area, damaging 1.2 billion board feet of tribal trust resources, which require salvage activities, road restoration and maintenance, fence repairs, resources for fish and wildlife, and risk for non-native invasive species and noxious weeds. Of these acres 126,393 acres of high and moderate severity burns require reforestation in order to restore healthy working forest. The DOI/BIA identified $55 million needed for rehabilitation of which $8.7 million in fiscal year 2016 was funded leaving a gap of $46 million unfunded for stabilization and rehabilitation. The DOI/BIA has planned approximately $30 million for the next five years but it is not guaranteed.

Suppression cost on the 338,110 acres exceeded $97 million and while rehabilitation costs are generally equal to the suppression cost, they can be as much as three times higher. While the Department of Interior's Office of Wildland Fire Management (OWFM) has estimated the cost of rehabilitation on the five subject reservations at $55 million, the study team estimates that the actual rehabilitation costs are likely to exceed $100 million. Post fire rehabilitation estimates (WFLC 2010) ranges from $800 to over $1200 per acre to address present and future resource risk and long-term losses due to erosion, water quality, wildlife, and future timber values. The OWFM was very

conservative and in a much lower range than rehabilitation cost indicated for a prudent land manager. We also find that funding is lacking in several crucial areas such as fish and wildlife preservation, road repair to stabilize soils, timber sale preparation, as well as the administration necessary to salvage the damaged timber. These specific activities are important to the very livelihood of the tribes and provide the economic stability to their communities.

Below, we treat each ITC question separately in brief We believe a more in-depth study is required to provide a fuller picture and more detailed data and discussion for each.

## 1. Is the current methodology appropriate and are cost estimates reasonable?

In 2015, drought conditions persisted in Washington State and other parts of the Northwest where record deficiencies in winter precipitation combined with dry fuels and hot summer temperatures resulted in nearly 1.8 million acres burned and 338,110 acres of the five Tribes' Indian trust forests burned. Approximately 1.2 billion board feet of green timber was killed, timber value lost was worth more than $143 million with an additional $377 million in lost wages and services totaling over $521 million. As a result, 126, 393 acres likely will need reforestation. Tribal losses such as forest resources, revenue, and jobs will extend decades into the future as burned forests recover. **Swift, decisive management and immediate investment will be required to minimize the time for large diameter conifer restoration.**

**Table 1** provides a look at the funding history and need for the 2015 fires. The activities such as timber sale preparation and administration, road stabilization and fish and wildlife resources were either not funded or marginally funded. Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR) have specific funding requirements within a five-year period and do not cover many post fire needs as identified in Table 1. Additionally post fire needs extend beyond five years with stressed trees and increasing mortality, unstable roads and water quality impacting fish habitat which often go beyond the five years required to implement stabilization and rehabilitation activities.

**Table 1 - Funding History and Need**

| Activity | DOI Needed Funding For Rehabilitation Nationwide | Funded FY 2016 | DOI Projected Funding from BAR Sources [a] | Unfunded Balance |
|---|---|---|---|---|
| Timber sale Prep & Admin | $2,653,638 | -- | -- | ($2,653,638) |
| Reforestation Cost | $28,371,217[b] | $5,847,697 | $24,503,645 | ($19,623,520) |
| Road Cost & Maintenance | $8,925,775 | $2,900,000[c] | $1,983,285 | ($8,925,775) |
| Wildlife and Fish | $12,092,000 | -- | $152,102 | ($12,092,000) |
| Noxious Weeds, Fencing, CFI plots | $3,300,100 | -- | $2,427,876 | ($3,300,100) |
| Monitoring | -- | -- | $1,262,610 | -- |
| **Total** | **$55,342,730** | **$8,747,697** | **$30,329,518** | **($46,595,033)** |

[a] Planned for but not guaranteed funding into the next 5 years

[b] Balance after allowance for assumed tribal contribution ($30,227,000-$1,855,783)

[c] ES funds available only for 2 years following the fire for roads and soil stabilization

The burned forests, both on and adjacent to reservations, will enhance fire risk in years to come if they are not adequately salvaged and rehabilitated. In addition to the need to reforest this valuable commercial forestland, a number of other adverse environmental impacts will require mitigation over the next few years to stabilize and heal the land. Forest management costs on Indian lands are usually covered by a deduction from stumpage payments. This deduction is typically 10% of the gross proceeds of a timber sale. This source of funding will be inadequate to pay for the reforestation and rehabilitation of all land within the 2015 tribal fire areas for three key reasons: 1) there is too much ground to cover – it is estimated that the Tribes will only be able to salvage 20-30% of the volume in the burned areas; 2) minimal stumpage rates – the stumpage received from the sale of burned timber will be nominal, and the value is lower each year; 3) competing interests – forest management deductions are commonly used by tribes to employ workers who help offset regular forestry program operations. Redirecting funding to reforestation would result in tribal employment terminations or lay-offs and make it even more difficult for tribes to prepare and administer timber sales and perform other vital forest management tasks.

To salvage whatever value exists in the estimated 1.2 billion board feet of killed timber, the tribes must act quickly to prepare and administer these salvage sales. This will require additional resources. The BIA estimated that $2.6 million in additional costs will be needed for environmental analyses, cruises, appraisals and Forest Officers Reports, negotiating sales with purchasers, and marking and administering timber harvest. None of this request has been funded. Additional staffing, both temporary and permanent, will be needed to complete this task and manage the long-term restoration activities, while most of the tribes are understaffed, with 15-20% of their staff positions vacant, thus leaving little opportunity to address this emergency with the urgency required.

Restoration of post-wildfire riparian areas can include stream bank plantings, adding large woody debris into a stream channel, providing fish passage through existing road crossings, other wildlife habitat improvements, and managing or monitoring noxious weeds and non-native invasive species. DOI/BIA estimates that nearly $12 million will be needed to accelerate the restoration for fish and wildlife, for stream bank restoration, stream channels, and other riparian features, with proposed funding at only $150,000.

Increased salvage logging operations will require that many existing roads be re-opened, reconstructed, and maintained in order to harvest the accelerated timber sales. It is estimated that approximately $9 million will be needed for this purpose; the study team believes the cost is underestimated, considering the impacts to soils through erosion, culvert replacement, and the high level of use roads will receive during salvage operations.

The DOI/BIA estimate of $55 million in total costs for rehabilitation, are incomplete. Oester (2000) suggested $329 per acre for reliable, accelerated regeneration ($32.9 million) with herbicides. Where herbicides are not an option, costs will be effectively doubled (Sessions et al. 2004) to achieve the same results ($65 million). Research at Oregon State University suggests that restoration of large trees can be accelerated by twenty or more years but swift, active management is required (Sessions

et al. 2004). The Western Fire Leadership Coalition (2010) reported that restoration costs were often multiples of the direct suppression cost. Rehabilitation for the Rodeo-Chedeski was three times the direct suppression cost of $45 million. Hazard mitigation and watershed restoration was $163/acre for the 2003, 370,000 acre San Diego County fires (Diaz 2012).

In sum, we believe current rehabilitation cost estimates are extremely conservative. Even if fully funded, the actions are unlikely to produce all the desired results of restoring tribal resources to meet tribal economic, environmental, and cultural needs.

## 2. IFMAT warnings about the consequences of failing to provide adequate resources to fulfill fiduciary trust responsibilities

The capacity of the tribes to conduct the necessary rehabilitation and to restore their lands to meet economic, cultural, and environmental needs is challenged even without the magnitude and urgency of wildfires. These risks have been identified in all three IFMAT reports and the funding gaps are great and the consequences are that more damage can be expected with climate change and the fire damage increases expected in the future.

Three times in the past twenty years, national assessments of Indian forestry programs (IFMATs I, II, III) have issued warnings about the dire current and future consequences of chronic federal failure to provide adequate resources to Indian forestry programs, which were mandated by Congress in 1990 with passage of the National Indian Forest Resources Management Act (NIFRMA) to fulfill fiduciary trust responsibilities. This is particularly true with respect to fire and fire management.[3]

IFMAT I (1993) reported a growing backlog of Indian forests that needed thinning, a higher percentage than was found on National forest lands, and that the buildup of dense stands on Indian forests was increasing the risk of catastrophic loss.[4]

IFMAT II (2003) noted that forest health issues related to insects, disease, and wildfire risk represented one of the largest continuing challenges on Indian forests, and that current levels of effort in forest health and silviculture were inadequate in the face of the accelerating forest health

---

[3] NIFRMA

Sec. 302 Congress finds and declares that … (3) existing federal laws do not sufficiently assure the adequate and necessary trust management of Indian forest lands;

Sec. 304 (4) Forest land management activities' means… (D) protection against losses from wildfire, including acquisition and maintenance of fire fighting equipment and fire detection systems, construction of firebreaks, hazard reduction, prescribed burning, and the development of cooperative wildfire management agreements;

Sec. 305 (b) Indian forest land management activities undertaken by the Secretary shall be designed to achieve the following objectives…

(1) the development, maintenance, and enhancement of Indian forest land in a perpetually productive state in accordance with the principles of sustained yield and with the standards and objectives set forth in forest management plans by providing effective management and protection through the application of sound silvicultural and economic principles.

[4] IFMAT I p. ES-6, V-2, V-10, V-13

issues in the 21st century.[5] Protection of forest health will require an ongoing commitment to wildland fire hazard and risk abatement through an integrated program of silvicultural treatments and fire prevention education.[6]

IFMAT III (2013) summed up the situation:

> *Few tribal land managers, particularly in the West, deny the growing problem with widespread fuel accumulation owing to decades of fire exclusion. Despite rising costs of suppression across the nation, and the National Fire Plan (2000) leading to major increases in federal agency funding for preparedness and fuel treatments, there has been an increase in the acreage of forests and woodlands consumed by wildfire each year.*
>
> *Tribes have more management flexibility to deal with these issues than their federal neighbors. In general, our findings highlight many examples of healthy and productive Indian forests. We saw sound practices such as innovative uneven-aged forest management including prescribed fire, thinning regimes, and increasing use of integrated multiple resource management.*
>
> *These examples of effective treatments offer hope, but are not enough to match the magnitude of the growing problem. The health of tribal forests is threatened by density-related issues such as wildland fire, insects, and disease, which will increasingly compromise long-term forest sustainability. This is especially the case in the dry West where much of Indian forest acreage is located.*
>
> *Suppression funding is legislatively based on a 10-year running average and continues to climb, which pulls money from preparedness and fuel management. The boost from National Fire Plan funding is dissipating more each year. BIA-National Interagency Fire Center (NIFC) struggles to maintain a qualified workforce and funding for routine operations, leaving little buffer in the system.*
>
> *Thinning backlogs on tribal forest lands are estimated by the BIA to total 440,000 acres. This does not include the tens of thousands of acres on which hazardous fuel reduction treatments are needed. If land managers are going to use fire as a tool to restore ecosystems and reduce landscape level fuel accumulations, they need to be treating five to ten times the amount of acres they have been treating annually over the last decade.*
>
> *Adding urgency to these risks are climate change; personnel shortages; the widespread loss of harvesting, transportation, and processing infrastructure; and adjacent forest ownerships that are densely stocked in many locations, posing increased wildfire threats to tribal resources. Tribes, with their long and acknowledged relationship with fire and sustainable land*

[5] IFMAT II p. 53, 55

[6] IFMAT II p.8

*management, can lead the way over the coming decades as public land management agencies work toward the goal of restoring the natural role of wildland fire.*[7]

***But they can only do this if they are adequately funded and staffed to do so…***

Since 1995, 4.8 million acres of Indian forestlands have been burned by wildfire and annual losses are increasing. In 2015, a record 539,000 acres of Indian forests were scorched nationwide. Through all three IFMAT investigations, tribal members consistently reported that protection of Indian forests should be the paramount management objective, yet Indian forests are increasingly being placed in jeopardy of catastrophic loss.[8]

## 3. The need for timely action to minimize environmental damage from the 2015 wildfires

The medium- and high-severity component of the five-reservation 2015 wildfires, 126,393 acres, presents an urgent need to act in order to salvage investments, stabilize sites, and rehabilitate the forests for future generations. Standing dead trees degrade rapidly given the natural actions of weather, insects, fungi and wildlife. Timber stumpage value is lower for burned wood, fades quickly in the first year, particularly for pine, and is largely absent after three years (see 4 below). Large fire events depress prices even further. Salvage is often and should always be coordinated with these other actions. The planned five year horizon for rehabilitation is not long enough to address soil damage and erosion which affect forest productivity and to address hydrologic processes including fish and wildlife habitat. Post fire damage often goes beyond five years:

**Emergency Stabilization** (ES) – actions designed to prevent degradation of natural/cultural resources immediately post-fire, as well as protect life and property within the burn area and surrounding properties based primarily on erosion, landslides, and flooding. Mulching and seeding are common stabilization actions, as well as road grading and culvert cleaning. Funds are tied to suppression dollars and available up to one year plus 21 days, with an option to extend to two years. There are few delays in ES funding and timely action is the norm.

**Burned Area Rehabilitation** (BAR) – actions to repair and improve burned landscapes consistent with the intended management plans prior to burning, and typically associated with long-term protection of timber/water resources, soil productivity, wildlife habitat, and minor facilities. These actions commonly include planting and seeding (native plants and wildlife food sources), invasive species control, road relocation, culvert replacement, and stream restoration. These funds are tied to wildland fire management annual budgets and are available for up to five years. In contrast to ES funding, BAR funding is often delayed or absent. In the past (including 2015), allocations were not available until after October (fiscal year) preventing rehabilitation of early season fires that would

[7] IFMAT III Volume I p.6-7

[8] IFMAT I p. III-3, IFMAT II p.33, IFMAT III Volume II p.19-20

benefit from autumn treatments (and the associated environmental conditions in the September and October), or allocations were not funded given a higher national priorities (e.g. sage-grouse habitat rehabilitation).

**Delays in rehabilitation** create three basic concerns, however, that extend well beyond the issues associated with only ES and BAR projects designed for erosion control and water quality protection:

**Loss of ability to regulate early-seral plant community composition that will drive forest succession**. After heavy and widespread disturbance, the stand initiation environment is species rich, microsite diverse, and competitively dynamic. Successful early establishment and growth of individuals and communities sets the trajectory for what will occupy and dominate the site for decades to centuries. Silviculturists can most easily manipulate that environment and propagule sources immediately post disturbance in order to meet short- and long-term management objectives. Delay can make minor issues (e.g. invasive plants or shrub regrowth) into major and expensive management problems.

*Example:*

*On the Moonlight Fire in northern California, private landowners promptly salvaged the fire-killed timber and planted. Site preparation and planting reportedly cost $300-400 per acre. On the adjacent USFS land, salvage was delayed, and on many acres, was non-existent. The agency claimed that site preparation and planting would cost upwards of $2200/acre. The extra cost was for removing and disposing of dead, but not salvaged trees, and treating shrub communities that had developed between the time of the fire and replanting.*

**Loss of ability to regulate future fuel conditions and fire risk at the stand and landscape scales includes the risk of re-burning prior to culmination requiring more decades to return to original conditions:** Specifically concerning fuels redistribution and regrowth in dry forested systems, silviculturists can manipulate the type and amount of residual surface fuels and early vegetative regrowth in order to delay and minimize onsite fire hazards, as well as alter how the site fits into the broader landscape-level fire risk. These concerns are evolving with anticipated climate change, length and depth of fire seasons, and fuel continuity across landscapes that include federal lands. This is especially important on Tribal forest lands, which are managed as working forests. These lands must provide the full array of natural and cultural benefits to meet tribal objectives in perpetuity. Failure to aggressively treat the post-fire forest will diminish future economic, cultural and societal benefits for future generations and communities.

**Loss of years in tree growth related to the productive capabilities of the land and the economic foundation losses for the tribes**: Consistent with the aforementioned modifications of early seral conditions and fuels, silviculturists can most easily establish the desired species and genotypes at appropriate densities and by controlling competing vegetation to promote high survival and rapid seedling growth, which causes quick stand establishment. This sets the best trajectory for early and predictable economic return on the investments. Relying wholly on natural regeneration to recover

burned areas can slow forest development by decades; a delay of just five years in recovering a properly stocked forest condition will reduce the return on investment by 20-25%.

**When salvage of standing dead trees is delayed** it also causes delays in emergency stabilization and rehabilitation given: 1) efficiencies associated with operational planning and implementation; 2) requirements for reforestation following salvage; and 3) availability of funds for additional rehabilitation and site improvements from the salvage receipts. It is logical and efficient to plan and execute complementary stabilization, rehabilitation and salvage activities – the same people on the same mission with much of the same equipment working together on the same site at the same time. **Delays and uncertainties about any one operation create inefficiencies if not absolute conflicts.**

BIA estimated a need for $55 million for OWFM BAR funding over five years for post-fire recovery from last summer's wildfires on Indian trust forests, with $9 million needed in this fiscal year (FY 2016). But OWFM has only designated $3.4 million of its $19 million BAR FY '16 budget for Indian trust forest recovery. In the much less destructive 2014 fire season, Indian trust forests received $4 million in BAR funds. Although the Department of Interior knew of the catastrophic extent of 2015's Indian forest fires while FY 2016 appropriations were still being developed, they made no request for any additional funds. Congress, at the specific request of tribes, added $2 million to BIA (not OWFM) for post-fire recovery, but the Department of Interior has done nothing to respond to the severity of last summer's reservation fires. For FY 2016, as in past years, BLM continues to be the recipient of the majority of OWFM's BAR funding. Interior's inadequate response for Indian forest rehabilitation adds insult to injury, further crippling the recovery of these trust resources and only compounding the losses inflicted by the fires themselves.

The Department of Interior needs to find the additional resources immediately from non-BIA budgets to fully fund the $9 million needed for Indian forest rehabilitation in FY 2016, and, in addition, must fully fund the remaining four years needed to institute full rehabilitation and recovery from the 2015 while fires, beginning with a request for $13 million for FY 2017 and continue increasing funding as damage will continue and more effective responses will be needed to mitigate future losses.

## 4. The need to harvest the timber damaged by wildfires to recover as much value as possible

Tribes need to harvest timber damaged by wildfires to recover as much value as possible so as to: begin the stabilization and rehabilitation process, reduce the likelihood of subsequent fires, and to support tribal employment and income. Tribes rely on timber sale proceeds to fund tribal government services. Tribally-owned wood processing facilities provide essential employment opportunities on reservations where few exist. Tribes operate their forests using sustained yield, multiple-use principles. This means that the amount of volume harvested annually on a reservation, such as Colville, Yakama, Spokane, Nez Perce or Warm Springs, is regulated and consistent from year to year, providing a stable annual revenue stream to the Tribes. However, when a stand-replacing fire

occurs, it alters that plan and consequently lowers the cash flow associated with a long-term enterprise.

Forest fire creates first an urgent need for suppression action to contain the fire to limit damages. Delay or insufficient suppression response leads to rapid spread of wildfire with consequent increases in costs and loss of resources. Similarly, a forest fire creates an urgent need for salvage and rehabilitation efforts in order to recover as much value as possible, while limiting the negative environmental consequences, such as another wildfire which can transition vegetation to non-forest and increase soil erosion.

Much of the timber killed by fire can be processed into lumber and veneer. Residual chips from fire killed timber, however, cannot be used to make paper. As a result, the price for fire-killed timber, when harvested immediately, is discounted by 20-30% the first year and can be as little as 20% of green prices in the five years following, and that is only if check and rot deterioration does not reduce its value to zero. Some species are susceptible to fungal stain and damage from insects. After one year, the value of fire-killed timber can decline by 25-35%. After two years, values can fall 35-45% and by the third year, there is almost no commercial value left in most species.

Furthermore, not all fire-killed timber can be salvaged. This is due to issues such as road access, age and quality at time of mortality, unstable terrain, market limitations, and staff shortages of skilled foresters, loggers, road builders, truckers, and log scalers. Market limitations refer to the finite ability of local log processors to absorb extraordinary floods of log volumes such as those created by the 2015 fire season. Under such circumstances, the first logs to market bring the best price, and last logs may find no buyers.

An effective and comprehensive salvage effort for fires like those of 2015 requires considerable resources. Appropriate salvage and rehabilitation cannot be accomplished with current staff and funding. While Tribal forest organizations have been remarkably effective at making due given the low level of funding available to them, the massive effort needed to maximize recoverable salvage timber value, while rehabilitating burned area landscapes, requires availability of emergency funds and additional people. Tribes do not have such response capabilities. For example, chronic personnel shortfalls of 19% tribal and BIA staff vacancies have been reported by the Colville tribes.

Private landowners affected by the 2015 fires were quick to salvage and recover maximum value from fire-killed timber. Most of the salvageable wood has already been removed, and some of the burned acres have been replanted. Private landowners can move quickly because they are fully staffed, do not have to comply with federal regulatory procedures, can borrow against forestlands to raise emergency operating capital, and can flexibly expand their workforce through increased reliance on contractors.

**The Colville Reservation as a Specific Example**

The Confederated Tribes of the Colville Reservation suffered the greatest tribal wildfire impacts in 2015; 255,990 acres burned in total of which 87,500 acres were forests that experienced high- and moderate-severity burn damage. The BIA estimates that 788 million board feet Colville tribal timber (14% of total standing inventory) burned in 2015 of which possibly 236 million board feet (30%) may be salvaged.

Colville foresters began emergency salvage operations in October 2015. Five months later, by the end of February 2016, 54 million board feet of timber, valued at $5.2 million ($96/MBF), had been salvaged. At this pace (11 million board feet /month), it will take most of two years to salvage 30% of the total burned timber. After that, the 550 million board feet of burned timber remaining will not be worth much. Just for perspective, salvage of 11 million board feet /month requires transport of 130 truckloads of timber per day across rapidly deteriorating tribal road systems that were not designed or maintained to support such extreme traffic loads.

In summary, although Colville's have embarked upon an ambitious program of timber salvage, it appears that 70% of the burned inventory will not make it to market and the 30% that is salvaged will be discounted. Tables below reflect an estimated loss of $78 million (82% of total timber value) to Colville tribes from timber burned during the 2015 fires.

| Total 2015 Burned Timber (MBF) | Average Stumpage Price (1980-2013) ($/MBF) | Total Value 2015 Burned Timber ($ million) |
|---|---|---|
| **787,500** | **$120** | **$95.0** |

| Salvage Year | Salvage Volume (MBF) | Salvage Stumpage Price ($/MBF) | Total Salvage Stumpage Value ($ million) |
|---|---|---|---|
| **Year 1** | 118,000 | $96 | $11.3 |
| **Year 2** | 118,000 | $48 | $5.7 |
| **Total** | 236,000 | $72 (average) | $17.0 |
| **Expected Timber Value Loss** | | | **$78.0** |

Large-scale wildfire damage assessments should be considered illustrative and sufficient to authorize large scale salvage and rehabilitation efforts. Comprehensive and precise measurements of fire damage take time and effort, both of which are better directed toward immediate salvage efforts to recover perishable value. However, when insufficient resources compromise needed investments in burned area rehabilitation (BAR) the long-term value and sustainability of Indian forests in trust are compromised. **Preliminary data provided by BIA indicate that the short-term cumulative losses in timber value from 2015 forest fires for Colville, Yakama, Spokane, Nez Perce and Warm Springs will**

**be greater than $143 million due to the fires. This figure does not include the many lost values, costs, wages, services and needed investments associated with forest landscape and infrastructure rehabilitation.**

## 5. Other losses, such as impact on future timber supply, jobs, local communities, etc.

The fire losses, if unrepaired, will have significant impact on employment, environment, and social values for tribes and the regions that contain them. The BIA has an average annual reforestation budget of approximately $3.2 million (a budget of $3.2 million would cover planting of less than 11,000 acres at $300 per acre). This funding is earmarked for normal year reforestation activities that do not include catastrophic fire events. Although there is a considerable amount of available timber to harvest due to the large stand replacement fires that occurred on tribal land this year, the tribes will not be able to sell the majority of this volume as the market will be flooded with salvage timber from numerous sources (see 4. above). This will result in an inevitable loss of economic activity for the tribes and their surroundings.

The change from green timber to burned timber has long-term consequences on the regional infrastructure, employment, and raises future risk of additional losses from wildfire from adjacent Forest Service lands. Some of the burned timber is expected to be harvested (522 million board feet) but at a much lower value than green timber. A significant volume of timber will not be recoverable (715 million board feet) due to such a large volume of timber being marketed during a short time period. These results in poor prices, degrading log values due to insects and deterioration, not to mention the lack of logging and milling infrastructure to address this level of activity in the region. There is also a loss in wages in not harvesting the 715 million board feet; for each million board feet not harvested and processed, there is a loss of $528,000 in wages and benefits. The five subject tribes will suffer a $521 million indirect economic loss from the 2015 fires.

**Table 2** provides a summary of the losses in timber value and wages due to unrecoverable volume.

**Table 2 - Losses in Timber Value**

| Activity | Timber Volume (MBF) | Value Lost on Burned Timber |
|---|---|---|
| Salvageable | 522,246 | ($54,101,087) |
| Unrecoverable Salvage | 715,577 | ($89,295,780) |
| Total Timber Value lost due to Fire | 1,237,823 | ($143,396,867) |
| Wage Losses due to unrecoverable salvage | 715,577 | ($377,824,656) |
| **Total Lost** | | **($521,221,523)** |

As a future of greater fire danger and extent unfolds, Indian forests need to get state of the art fire protection and post-fire management if their environmental and economic benefits are to be maintained, and the federal government's trust obligation is to be adequately met. For example, Interior's wildland fire fighting policy is to protect life and property first. Indian trust forests are not considered property, but privately-owned structures like cabins, homes, and barns are. As a result,

when new fires were burning on and off reservations last summer, fire-fighting resources were prioritized to protect private property while tribal trust forests were allowed to burn. In one instance, fire fighters on Indian land were directed to leave that fire to go protect private residences off reservation. As a result, fires on Indian trust forest fires were allowed to grow, getting beyond control, leaving tribes to bear the losses, while private property owners, often with insurance, received the benefits of federal fire protection.

The "life and property first" policy needs re-evaluation to acknowledge the unique trust responsibility that the federal government has to protect Indian resources and to include Indian trust forests as property. Tribes, and often the regions around them, rely upon their forests for a wide range of essential functions, and the U.S.'s unique fiduciary obligation to protect these assets needs to be recognized in federal fire-fighting policy. Tribal communities live, work and reside on their lands and rely on their forest.

The Office of Wildland Fire Management has recently proposed a new Risk Based Wildland Fire Management (RBWFM) model to guide future distribution of OWFM Preparedness and Fuels Management funding among Interior agencies. The set of "values" upon which the model is based fails to make any specific mention of the needs of tribal forests, tribal reliance on their forests, or the federal trust responsibility. Instead, many of the values favor BLM, and BLM is now making an all-out push for rapid adoption of the RBWFM model. No information has been provided to tribes about the consequences of this model, and BIA and several other agencies are opposing BLM's efforts to finalize the model.

The ITC and several tribes have written the Interior Secretary objecting to the model and asking that further consideration be suspended until there has been full consultation on the RBWFM model and its future consequences for tribes.

## Summary

The Interior Department is actively failing in its fiduciary obligations to tribal forests:

A) The DOI's estimates of rehabilitation cost for damage resulting from the 2015 fire season are not sufficient for fire rehabilitation and recovery. Independent studies show rehabilitation costs are equal to suppression cost or as much as three times higher than suppression cost, far beyond the support DOI has projected. Funding post-fire rehabilitation does not take into account the loss of older regeneration, legacy trees, cultural sites, wildlife and fish resources damaged by fires, or additional sale preparation and administration costs, all of which lengthen the recovery period.

B) Plans to fund rehabilitation cost over a five-year period are met with several challenges; first funding is needed immediately to address salvaging valuable timber resources and mitigating soil erosion and long-term tree growth; second the five year period does not address all the long-term losses with tree mortality, stabilization of soils and water quality issues that impact long-term

productivity well beyond five years.

C) The five subject tribes suffered $521 million in losses as a result of the 2015 wildfires. Many of these costs are the result of the failure to provide adequate resources to exercise proper fiduciary responsibilities to prevent deterioration of the trust corpus and harvest allowable cut levels under forest management plans. These risk factors have been identified in the previous IFMAT reports over the past 20+ years (IFMAT I, II and III) calling for action to address the risk to trust resources managed by the tribes.

D) The OWFM Risk Based model does not adequately address all trust resources and intends for future distribution of Preparedness and Fuels Management to fund other agencies while ignoring the Department's trust responsibilities for Indian forest and the importance of forests to tribal governments and communities. It relegates fighting fires on Indian forests to second-tier status, giving preference to private property while allowing reservation fires to expand.

E) In post-fire rehabilitation, DOI is declining to recognize the historically severe 2015's fires in Indian Country, hindering needed recovery and only compounding the current and long-term fiscal and resource losses already inflicted on tribes.

## Recommendations

The stand-replacing fires of 2015 highlight inadequacies in the government's protection of Indian forest trust lands, and foreshadow future problems. Specifically, DOI should:

- Recognize and treat Indian Forest Trust Lands as "property" when prioritizing suppression resources.
- Establish and maintain a pool of funds and resources for immediate emergency post-fire salvage, rehabilitation, and restoration activities all available within days of final suppression.
- Provide adequate compensation for long-term economic impacts of fires, most of which are not taken into consideration under the present funding system.
- Provide adequate funding for fire preparedness, fuels, and prevention.
- Re-evaluate the preparedness and fuels treatment models to give more weight to Tribal forest trust lands and the adjacent federal lands that pose a risk to Tribal lands
- Fund revision of forest plans for Tribal forests impacted by catastrophic fire.
- Fund Tribal mills to make changes in equipment and production protocols in response to catastrophic fire.

- Obtain fire insurance for Tribal Forest Lands. Fire insurance for timberlands has become available and with the increased danger of wildfire damage to timber resources vitally important to tribal community's insurance policies can mitigate losses.

All but the first of these requires enhanced investment, one of the three overarching needs described in the IFMAT III report. If these investments are not made, increasing fire risk and damage will continue to degrade tribal forests, to the detriment of the whole nation. Facing a changing climate will make large, stand-replacing fires more likely and frequent which have already blackened over 25% of Indian forest nationwide. The government must take steps to minimize damage from future fires and must respond with far greater urgency to restore and rehabilitate the forests that have been lost.

## Literature Cited

Diaz, J. Economic impacts of wildfire. Southern Fire Exchange. Joint Fire Science Program SFE Fact Sheet 2012-7.

IFMATs I,II,III. ITC, 1993, 2003, 2013

NIFRMA, US Congress, 1990

Oester, P., 2000. Enhancing regeneration success in the Inland Northwest. Pacific Northwest Extension Publication PNW 520.

Sessions, J., P. Bettinger, R. Buckman, M. Newton and J. Hamann. 2004. Hastening the return of complex forests following fire: the consequences of delay. J. of Forestry 102(3):38-45.

WFLC 210. The true cost of wildfire in the western United States. Western Forestry Leadership Coalition.

Drop box materials

## Acronyms

BAR-Burned Area Rehabilitation

BIA-Bureau of Indian Affairs

DOI-Department of Interior

ES-Emergency Stabilization

IFMAT-Indian Forest Management Assessment Team

ITC-Intertribal Timber Council

MBF-Thousand board feet

NIFC-National Interagency Fire Center

NIFRMA-National Indian Forest Resource Management Act

OWFM-Office of Wildland Fire Management

RBWFM-Risk Based Wildland Fire Model