



FLIGHT LOG

NEWSLETTER OF CALIFORNIA PARTNERS IN FLIGHT
WORKING TOGETHER FOR THE CONSERVATION OF SONGBIRD
POPULATIONS



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And other Bird Conservation News and Information from across the state and the nation...



Bird Conservation in Conifer Forests

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Many of the articles within this summer edition of Flight Log are adapted from presentations in the Applied Monitoring and Research session of the April 2005 statewide meeting. This meeting successfully engaged forest administrators, biologists, managers, and researchers from California, Oregon, and Washington. Presentations and discussions focused on the management and conservation of conifer forests. Articles on pages 6 and 8 of this

newsletter describe the objectives of this meeting and anticipated outcomes.

Each of these articles emphasizes the need for habitat management to be guided by the best available science. Biological monitoring is a vital component to any experimental method of habitat management. Whether it be prescribed fire or timber thinning, it is crucial to document the biological response to these management practices. Through monitoring, researchers and managers are able to scientifically test assumptions, then apply the results to future conservation planning efforts.

Cooperation and Experimentation in National Forests:

Wildlife Response to Restoring Fire and Structure to Ponderosa Pine Forests

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Conservation science requires strong partnerships to be effective. Through collaboration and open communication, researchers ensure that the results of their scientific studies are relevant to their land manager partners. With the cooperation of numerous federal partners, the Wildlife Conservation Society is beginning to understand the complexities of prescribed fire and its application to habitat management.— Editor

Partners in Flight is a collaborative venture between federal, state, and private agencies all concerned with avian conservation issues. The work of conservation requires this type of collaboration to be effective.

For the past several years we have been engaged with scientists of the U.S. Forest Service in northern California, the Department of Interior in Sequoia National Park and elsewhere on evaluating how woodpeckers, songbirds, and small mammals respond to experimental treatments in forests. The “we” includes my colleagues Kerry Farris of WCS and Luke George of Humboldt State University. Collaboration is the key here, too: the U.S. Forest Service manages most of the forested landscapes of the West, and the U.S. Park Service manages another large portion. Thus, working in a collaborative fashion is the only effective way to experiment with western fire issues across large landscapes.

Fire and western coniferous forests are intimately related. Fire was historically a frequent

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and important process of shaping forest structure and essential to many interactions of wildlife species. With westward expansion of a growing United States, forest management was dominated by large-tree logging and fire suppression. The paradox of suppressing fire has become clear in recent years: we have accentuated the risk of large-scale, stand-replacing fires because of our success in suppressing natural fires for nearly a century. This is most true for our ponderosa pine forests that dominate much of the interior West, and are prevalent on the east side of the Sierras and Cascades. Ponderosa pine had frequent low intensity fires that mostly would clear out understory vegetation and give it an open, park-like appearance. Fire suppression has allowed a dense buildup of both woody shrubs and small trees in these forests, and Douglas-firs have encroached. These denser forests are the ones that make the summer headlines of huge fires that risk life and property in the West, and result in big landscapes of scalded, dead trees.

Many wildlife species tied to these forests have been in decline. In ponderosa pine forests, woodpeckers, particularly White-headed Woodpeckers, are in trouble. White-breasted Nuthatches and Olive-sided Flycatchers have also been declining. Snags, the dead tree resource so important to wildlife species, are few in fire-suppressed woods since fire is important in their creation. Woodpeckers and other cavity dependent species may have declined with fire suppression.

With federal scientists, we are evaluating the consequences of fighting fire with fire. We are reintroducing low intensity prescribed fires to ponderosa pine forests in order to examine how such treatments can reduce catastrophic fire hazard. We have been examining how woodpeckers, songbirds, and small mammals respond to such treatments. Because our federal partners manage large landscapes, we have been able to be part of experimental treatments with thinning and prescribed fire in separate studies occurring in California, Oregon, and other sites in the U.S. We know from the wildfire called the Cone fire that roared up to our thinned and burn plots at Blacks Mountain Experimental Forest in northern California that these treatments effectively tame such wildfires and so reduce the risk of loss to forest and property.

Our wildlife results are now beginning to take shape after years of pre-treatment study, and delays in getting prescribed fires applied (forest crews are often not available as they are fighting big fires elsewhere). We have come to recognize how fire, bark beetles, fungi and woodpeckers are intimately connected in complex ways. Woodpeckers and bark beetles are attracted to forest fire. Bark beetles attack weakened trees and lay their eggs in new snags. Woodpeckers forage

on bark beetle larvae. Snag decay sufficient for providing the opportunity for cavity excavation requires fungi and other wood decomposers to act. We have identified woodpeckers, prominently Black-backed and Hairy Woodpeckers, as likely vectors of wood decay fungi as a byproduct of their probing and penetrating snags for bark beetle larvae. In ponderosa pines, cavities are excavated in the sapwood some five years after the death of the tree. We feel that woodpecker foraging in early decay, and the subsequent seeding of fungi in the sapwood, is important to facilitating cavity excavation in later decay. Thus, woodpeckers and snags with cavities are being connected in complex ways with prescribed fires.

In general, it appears that “bark gleaning” songbirds like woodpeckers, Brown Creepers, and White-breasted Nuthatches respond positively to our thin-and-burn-treatments, while “foliage gleaners” like warblers, tanagers, and vireos respond negatively. The issues and responses are complex, however, and we also see intriguing site-to-site differences that make overall generalizations difficult.

With our collaborations in forests, we have a great opportunity to understand the wildlife and societal benefits of fighting fire with fire in ponderosa pine. We hope to engage with federal land managers and the rural public in the near future to help promote the benefits of managing such forests more progressively with fire and for wildlife.



Trial by Fire: Research Design, Wildfire, and Bird Conservation

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The Klamath Bird Observatory (KBO) is a non-profit organization based in Ashland, Oregon that advances bird and habitat conservation in the Americas through science, education, and partnerships. As a member of California Partners in Flight, KBO contributes data on bird populations from the Klamath bioregion of northern California and coordinates the Klamath Demographic Monitoring Network, one of the densest networks on songbird populations in the West. Using this data as well as data from numerous cooperators, KBO co-authored the CalPIF Coniferous Forest Bird Conservation Plan (2000). For more information on KBO please visit their website at www.klamathbird.org or contact them at (541) 201-0866.

When faced with the complex problem of evaluating the guilt of accused witches, early judicial systems relied on a trial by fire system. Those that were guilty would perish in the flames, but if innocent they would be saved by the hand of God. Though flawed, this system persisted for years because it offered a simple answer to a complex question, was easily applied to many situations, and did not require extensive background information. Today, research on the effects of fire on bird abundance might be confused as something as simplistic as witch burning: a stand is treated with prescribed fire, if it is consistent with bird habitat needs then the birds will persist, if not, then the birds will disappear. In fact, interpreting the results of research on the effects of fire and fire management on bird conservation is much more complicated.

Fire is a critical component of coniferous forest ecology in western North America. Thus, land managers need to know how birds respond to wildfire, prescribed fire, mechanical fuels reduction and other fire-management strategies. Designing research that addresses these questions is challenging because 1) true replication and randomized study designs are difficult to achieve, 2) results must be interpreted within the context of the surrounding landscape, and 3) the spatial scale at which we study birds may be different from the scale at which management decisions are made.

In the absence of replicated, randomized designs, researchers often use other designs. Using point count data from a year before and the third year after the Quartz Fire in southeastern Oregon, I compared the ability of three study designs to detect changes in bird abundance after fire. The results of

this comparison demonstrated that using both before and after data at burned and unburned sites provides the most sensitivity for detecting changes in bird abundance. Comparing burned and unburned data without data from before the fire was effective, but failed to detect changes in two species. Using before and after data without controls was problematic because responses to fire were confounded with annual variability, resulting in several false-positive results. These results underline the importance of collecting pre-treatment data whenever possible.

Investigating the landscape context of fire provides land managers the ability to move from the burned/unburned dichotomy to understanding how landscape composition influences the response of birds. In the Klamath National Forest, the Klamath Bird Observatory has been monitoring the effects of prescribed fire on bird abundance. We have found that for most species there is relatively little change in abundance, even when as much as 60-80% of the area has been burned. The only species that showed significant declines were Nashville Warblers and Townsend's Solitaires.



PRBO files

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Finally, using research to inform fire management is challenging because fire management decisions may be made at the scale of an entire national forest or ranger district, whereas most bird research is focused on treatment areas that are only several hundred hectares in size. If we are to understand how large-scale fuels treatment programs will affect bird conservation, we will need to scale-up the results from small-scale research projects.

These challenges illustrate the need for careful study design (including pre-treatment data whenever possible), consideration for the landscape context of treatments, and the ability to match the scale of management decisions with the results of research at smaller scales. Because it is difficult to meet all three challenges in one research project, managers need to integrate the results of multiple research projects. This integration is labor intensive and requires extensive interpretation of technical literature.

The California Partners in Flight Bird Conservation Plans meet this challenge. The plans are a valuable tool for local land managers because experienced ornithologists have synthesized the best available science on bird conservation into an easily accessible format. To maintain their utility, these plans should be regularly updated to provide the most current information available on the management and conservation of bird communities. More information on the Klamath Bird Observatory's research on wildland fire and fuels treatments in the Klamath-Siskiyou ecoregion is available on our web-page: <http://www.klamathbird.org/Projects/fire.htm>

Jan Tait



A Food Web Approach to Managing Habitat for Shrub-Associated Birds

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The results from scientific studies such as this will help provide a basis for the management of forests to achieve bird conservation objectives. Documenting the importance of deciduous understory shrubs to songbirds is extremely valuable for land management planning documents and for future revisions of the California Partners in Flight bird conservation plans. -Editor

Food availability is a basic, critical habitat component that often limits the reproductive success and survival of breeding birds. For terrestrial birds, the availability of food resources often is closely tied to vegetation structure and composition, but direct linkages between vegetation and food resources rarely have been identified. An understanding of the trophic pathways from vegetation to songbirds would provide a basis for the management of vegetation to achieve objectives for managing bird habitat. For example, a tree or shrub species that supports an abundance of food for forest birds may serve as a focal species for management. The first step in understanding trophic links between birds and vegetation is to determine the composition of birds' diets. Once the composition of the diet is known for a bird species, it should be possible to identify the plant species and or habitat conditions that are important in supporting those food resources.

In an effort to discover the functional links between the resource requirements of forest birds and forest vegetation, we described the diet of Wilson's Warblers in managed Douglas-fir forests in western Oregon, and compared arthropod prey resources among common understory plant species. Wilson's Warblers were selected as a focal species because their declining population trend is cause for concern, especially to managers trying to meet goals related to the maintenance of biodiversity. In addition, Wilson's Warblers are representative of a guild of insectivorous, migratory bird species that are strongly associated with forest understory. Other species that share these habitat affinities, including MacGillivray's Warblers and Swainson's Thrushes, also are experiencing population declines in portions of the Pacific Northwest. These declines suggest the need for a critical evaluation of habitat

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requirements of shrub-associated species.

To learn which arthropods were prey for Wilson's Warblers, we identified arthropods from fragments in fecal samples collected from birds captured in mist-nets. We compared the arthropods consumed by Wilson's Warblers to those available on understory vegetation to determine which prey were used more than expected based on availability. Although the Wilson's Warbler was once known as "Wilson's Black-capped fly-catching warbler" for its habit of foraging on small, winged insects near the tips of branches, results of our study indicate that caterpillars (order Lepidoptera) were the favorite prey item during the breeding season. In fact, the large size and energy content of caterpillars relative to most other insects makes them extremely important in the diets of many songbirds that migrate annually to breed in northern temperate forests. Other insects that were favored prey included flies, beetles, and caterpillar-like sawfly larvae (order Hymenoptera (wasps)).

Having determined which arthropods were important prey for Wilson's Warblers, the next question to answer was, "which plant species support those arthropod prey taxa?" We addressed this question by sampling arthropods on vegetation in the forest understory, within 3 m of the forest floor, where Wilson's Warblers most frequently forage. An important pattern that emerged from our results was a greater abundance and biomass of favored arthropod prey on deciduous shrubs than on evergreen plant species, including conifer saplings. Although western hemlock in the forest understory was a source of caterpillars for birds, it supported low levels of all other prey taxa. While conifers may support high abundances of caterpillars during outbreaks, a large proportion of the lepidopteran diversity in western forests is associated with deciduous trees and shrubs.

Because populations of forest insect species can fluctuate dramatically among generations, prey diversity is important in providing a stable resource for generalist insectivores over time. Oceanspray may be particularly important in supporting prey for birds because it supports both a high diversity and a high abundance of Lepidoptera. Oceanspray also supported relatively high abundance and biomass of all other prey taxa pooled. Bracken, a fern that grows new fronds each spring from perennial rhizomes, supported a notably high abundance and biomass of prey taxa, especially flies and sawfly larvae, relative to other understory plants. In contrast, the evergreen fern species, sword fern, supported a relatively high abundance but low biomass of arthropods, reflecting an arthropod assemblage dominated by small detritivores that were not important in bird diets.

Broad-leaved deciduous shrubs and bracken fern seemed to provide optimal foraging habitat for Wilson's Warblers in the Oregon Coast Range because these plant species supported the highest abundance and biomass of arthropods favored as prey, particularly caterpillars, flies, and beetles. Traditionally, understory vegetation, particularly woody shrubs, has not been favored in management practices aimed at timber production in the Pacific Northwest. Instead, the goal of standard vegetation management has been to reduce cover of understory vegetation in order to minimize competition with crop trees. As a result of management practices aimed at reducing competition with commercially valuable conifers, shrub and hardwood tree cover in the Oregon Coast Range has declined over past decades.

Although management goals for much of the federal forestlands in the Pacific Northwest have recently shifted from an emphasis on timber production to the maintenance of ecosystems for a broader spectrum of products and services, the importance of understory vegetation may still be overlooked. For example, in an effort to encourage development of multi-layered forest stands in order to promote biodiversity and the restoration of late-seral habitat, managers plant or otherwise foster the growth of conifer regeneration in the understory. While conifer saplings may contribute layers of vegetation to stand structure, our results indicate that understory conifers contribute less to food resources for birds than do deciduous shrubs. Therefore, a stand with deciduous shrubs in the understory is more likely to provide appropriate foraging substrates for shrub-associated birds than one with an understory composed of shade tolerant conifers. We conclude that understory vegetation provides the foundation for food webs that contribute to diversity at multiple trophic levels in conifer-dominated forests of the Pacific Northwest.



Useful Products for Forest Bird Conservation: A Session Summary

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At the April 2005 California Partners in Flight statewide meeting, the audience participated in an interactive brainstorming session led by Melissa Pitkin of KBO and Sue Abbott of PRBO Conservation Science.. The goal of the session was to understand specifically: 1) how agencies/other groups use or could use these types of resources, and 2) how the resources can be improved to make them more useful. During this session, an open discussion of target audiences, scale, content, format, and funding was facilitated.

Using examples of outreach products relating to best management practices, this interactive discussion engaged audience members from all affiliations. The brainstorm of potential target audiences produced an extensive list. Target audiences included agencies, environmental organizations, private landowners, corporations, policy makers, forest engineers, forest activists, funders, outdoor recreation groups, consulting firms, local TV and radio, students, and community members. This broad list indicates support among the group for conducting outreach to diverse audiences. It also underlies the importance of understanding the target audience when creating outreach products.

The next component of the brainstorm focused on the appropriate scale for outreach materials. Examples of varying scales include the National Forest level, county level, Bird Conservation Region level, and the specific forest stand level. As we discussed the appropriate scale for these materials, responses varied from wanting broad generalities by habitat type to specific recommendations for watersheds or forests. Overall, the group strongly felt outreach materials were needed for each level of scale depending on the audience. It was also noted that the scale is dependent upon the management question at hand. For the remainder of the session the group agreed to focus on management agencies as the target audience for further discussion of best management practices materials.

Using management agencies as the target audience, the group next discussed the types of content included in best management practices guidelines. The need for regulatory information regarding bird species and monitoring was listed as an important component, as well as cost and personnel needs associated with monitoring. Information on desired habitat conditions and associations between Partners in

Flight focal species and habitat conditions was thought to be a necessary component, as well as the need to recognize the challenge of balancing bird species with other management priorities. There was a varied response to the types of recommendations presented in these materials. Some wanted step-by-step processes for achieving desired conditions, some wanted quantitative recommendations, and some wanted multiple scenarios and their effects presented. There was overall agreement that references should be presented along with the best management practices and these references should include websites, citations from other studies, and lists of pertinent literature for further reference.

The discussion of format again generated a diverse list of suggestions. It was generally agreed that printed materials should be colorful, well designed, and have pictures and graphics. It was also noted that websites and CD's were not a well-used tool for receiving and disseminating information. The discussion focused on person-to-person contact as the best way to distribute information. Person-to-person contact includes meeting with planners to address specific needs, having biologists conduct field tours with agency biologists, attending meetings with Resource Advisory Councils, plugging into existing networks (e.g. Cattleman's associations etc.), and developing a strategy to participate in the planning process. It was also pointed out that having a spokesperson from target audience groups was an excellent strategy to when targeting stakeholder groups.

Funding possibilities for best management practices and associated outreach included National Fish and Wildlife Foundation, the Joint Fire Sciences Technology Transfer program, Joint Ventures, agency partners, and the Neotropical Migratory Bird Treaty Act. There was overall consensus that these types of products and programs were easily funded.

For more information on the *Useful Products for Forest Bird Conservation* session, please contact:
Melissa Pitkin (mp@klamathbird.org, or
Kim Kreitinger (kkreitinger@prbo.org)



California News and Upcoming Meetings

Riparian Bird Conservation Plan a Success!

For more than 60 years, the Least Bell's Vireo has been absent from the Central Valley of California. Now, thanks to the efforts of River Partners, PRBO Conservation Science, the Endangered Species Recovery Program, the U.S. Fish and Wildlife Service, and numerous other partners, the Least Bell's Vireo has returned. The pair successfully raised two broods during the 2005 season at the San Joaquin River National Wildlife Refuge near Modesto, CA.

Least Bell's Vireos were once a common breeding bird in the Central Valley, but extensive habitat loss and alteration led to their extirpation. This restoration project began just three years ago and was completed this spring. One of the specific objectives for this project was to provide habitat for nesting and foraging riparian-obligate songbirds as identified by the Riparian Bird Conservation Plan. The restoration design incorporated many of the recommendations from the Riparian Bird Conservation Plan, including the planting of a dense, shrubby understory favored by this species.

Pocket Guide to Creek Birds of California

California Partners in Flight, in collaboration with PRBO Conservation Science and the Rocky Mountain Bird Observatory (RMBO), is producing a conservation tool for private landowners and other land managers. The **Pocket Guide to Creek Birds of California** will be an attractive, visual guide to common breeding birds found along California's creeks. RMBO has generously granted the use of their original Pocket Guide design template for this project.

Unlike other bird field guides, the Pocket Guide to Creek Birds of California will make important connections between 70 riparian-breeding bird species and their habitat requirements, such as timing of nesting and nest location. It will be designed to increase understanding about the importance of riparian habitat to breeding birds. Not only will landowners increase their familiarity with the birdlife on their lands, but they will also learn *Riparian Bird Conservation Plan* (CalPIF 2004) habitat recommendations to enhance creeks for birdlife.

Thanks to the Natural Resource Conservation Service, U.S. Fish and Wildlife Service, California Oak Foundation, California Wildlife Foundation, Central Valley Joint Venture, and the California Waterfowl Association for financial support.

New CalPIF Outreach Documents

The Outreach Committee recently developed two 1-page handouts targeted at private landowners. The handouts discuss ways to better enhance coastal scrub and chaparral and oak woodland habitats on private lands. This information was taken from the bird conservation plans. Similar documents will be created for riparian and desert habitats.

Mark Your Calendars!

30th Annual Meeting of Western Field Ornithologists
Santa Maria, CA
September 29 - October 1, 2005

Partners in Flight Western Working Group meeting
California
November 2- 4, 2005

Sandhill Crane Festival
Lodi, CA
November 4 - 6, 2005

Central Valley Birding Symposium
Stockton, CA
November 17 - 20, 2005

Updates to the CalPIF Web Site

www.prbo.org/calpif

New Focal Species Accounts - Thanks to our partners at Big Sur Ornithology Lab/Ventana Wilderness Society for writing the Rufous-crowned Sparrow and Nuttall's White-crowned Sparrow focal species accounts. Both can be found on the Coastal Scrub Bird Conservation Plan link.

Meeting Minutes Posted - Minutes from the April 2005 Statewide Meeting in Ashland, OR are posted. Read about exciting conservation developments.

Contribute to our Study Areas Database! We are always searching for new data contributors to the CalPIF Study Areas Database. See the Data/Maps page on the web site.

Partners in Flight News and Announcements

Tools for Bird Conservation in Conifer Forests

In April 2005 the Oregon/Washington and California Partners in Flight chapters held a workshop to establish a strategy for implementing regional conservation plans within current land management policies. Forest administrators, biologists, managers, and researchers took part in this workshop focusing on Partners in Flight (PIF) products (e.g. broad-based conservation plans, issue-specific decision support tools, and monitoring and research techniques) that can be integrated with developing agency policies and land management plans. The workshop was comprised of a series of presentations and discussions regarding:

- Application of monitoring and research to forest bird conservation;
- Federal management regulations and policies;
- Use of nationals and regional PIF bird conservation plans;
- Integration of bird monitoring within the adaptive management framework;
- Quantitative habitat and populations objectives; and
- Useful products for forest bird conservation.

The workshop resulted in a conservation planning strategy that includes three areas where CalPIF efforts will be focused to progress the integration of bird conservation objectives and land management planning. CalPIF will:

- Develop products that present the link between specific management issues, science-based results, and bird conservation objectives. Such products will be designed to provide decision support tools and best management practices designed to help land managers make informed decisions regarding land management planning bird conservation objectives.
- Develop a white paper including examples of 'success stories' outlining how science-based Partners in Flight products were used to make land management decisions that benefited focal species, as measured by our bird monitoring techniques.
- Focus on opportunities for linking CalPIF objectives with priority land management issues and products within revisions of Bureau of Land Management and U.S. Forest Service management plans and integration of Partners in Flight monitoring techniques within agency effectiveness monitoring programs. - John Alexander, KBO

The Migratory Bird Hunting and Conservation Stamp

This is the official name of the "Duck Stamp," which has been a stunning success story over its 71-year history. Started during a major wetland-and-waterfowl crisis in the mid-1930s, the stamp has been used as a very effective funding mechanism for our refuge system. It has accrued over \$700 million and has been used to secure over 5.2 million acres of valuable wetland habitat. About \$25 million a year is currently collected through yearly stamp sales.

Proceeds from the \$15 stamp go into the Migratory Bird Conservation Fund, used to purchase valuable wetlands for the National Wildlife Refuge System. It is no accident that we may have Ivory-billed Woodpeckers today because major chunks of stamp revenue has gone to such places as Cache River and White River National Wildlife Refuges. While some serious bird conservationists have been recommending "broadening" the stamp, all concerned birders and bird conservationists should support the current stamp by buying the 2005-2006 stamp now. For more details on the current stamp program, look here:

<http://www.fws.gov/duckstamps/> and
<http://www.fws.gov/duckstamps/Info/Constituents/birder.htm>.

A Search for Success Stories!

The California and Oregon/Washington chapters of Partners in Flight are compiling a series of manuscripts that illustrate forest bird conservation within an adaptive management framework. These "success stories" will be 3-5 pages in length and will include three overlapping and interacting spheres: science (inventory and monitoring); management (including regulation); bird population changes (detected by monitoring and fed back to affect management practices). This publication will include a variety of forest types (i.e., riparian, coniferous, oak woodland) and management techniques (i.e., restoration, fuels management, etc.). If you have ideas for success stories to be included in this publication, please contact Kim Kreitinger at: kkreitinger@prbo.org.

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Look for an electronic version of this newsletter and Partners in Flight news, announcements, and links at the CalPIF web site at <http://www.prbo.org/calpif>