



I. ORGANIZATIONAL AFFILIATIONS. Report your relevant business relationships (as an employee, owner, officer, director, consultant, etc.) and your relevant remunerated or volunteer non-business relationships (e.g., professional organizations, trade associations, public interest or civic groups, etc.).

Center Geneticist for USDA Forest Service, Dorena Genetic Resource Center

Coordinator, IUFRO 2.02.15, [2.02.15 - Breeding and genetic resources of five-needle pines](#)

Organizer/Co-organizer of 2011, 2015, 2018 workshops on Genetic resistance (to insects and diseases) in Forest Trees (e.g. <https://treeresistance2018.ca.uky.edu/>)

Member: SAF, AAAS, Sigma Xi, APS, Whitebark Pine Ecosystem Foundation

Currently Committee Member, The National Academies of Sciences, Engineering, and Medicine study, *The Potential for Biotechnology to Address Forest Health* (<http://nas-sites.org/dels/studies/forest-biotech/>)

II. GOVERNMENT SERVICE. Report your relevant service (full-time or part-time) with federal, state, or local government in the United States (including elected or appointed positions, employment, advisory board memberships, military service, etc.).

Center Geneticist for USDA Forest Service, Dorena Genetic Resource Center (since 1991)

III. RESEARCH SUPPORT. Report relevant information regarding both public and private sources of research support (other than your present employer), including sources of funding, equipment, facilities, etc.

Current:

National Science Foundation

Crater Lake Institute

Alberta (Ministry of Agriculture and Forestry; and Waterton Lakes National Park)

IV. PUBLIC STATEMENTS AND POSITIONS. List your relevant articles, testimony, speeches, etc., by date, title, and publication (if any) in which they appeared, or provide relevant representative examples if numerous. Provide a brief description of relevant positions of any organizations or groups with which you are closely identified or associated.

Subset:

Showalter DN, Raffa KF, Sniezko RA, Herms DA, Liebhold AM, Smith JA and Bonello P (2018) Strategic Development of Tree Resistance Against Forest Pathogen and Insect Invasions in Defense-Free Space. *Front. Ecol. Evol.* 6:124. doi: 10.3389/fevo.2018.00124

Bullington, L. S., Lekberg, Y. , Sniezko, R. and Larkin, B. (2018), The influence of genetics, defensive chemistry and the fungal microbiome on disease outcome in whitebark pine trees. *Molecular Plant Pathology*, 19: 1847-1858. doi:[10.1111/mpp.12663](https://doi.org/10.1111/mpp.12663)

Sniezko, R.A. & Koch, J. 2017. Breeding trees resistant to insects and diseases: putting theory into application. *Biol Invasions* 19(11):3377-3400. doi:10.1007/s10530-017-1482-5

**Liu JJ, Williams Holly, Li Xiao Rui, Schoettle AW, Sniezko RA, Michael M, Zamany A, Roke G, Chen H. 2017. [Profiling methyl jasmonate-responsive transcriptome for understanding induced systemic resistance in whitebark pine \(\*Pinus albicaulis\*\)](#). *Plant Molecular Biology*. pp 1–16 DOI 10.1007/s11103-017-0655-z**

Sniezko, R.A., Kegley, A. & Savin, D.P. *New Forests* (2017). Ex situ genetic conservation potential of seeds of two high elevation white pines . *New Forests* 48:245-261. doi:10.1007/s11056-017-9579-3

Liu, J.-J., Sniezko, R. A., Zamany, A., Williams, H., Wang, N., Kegley, A., Savin, D. P., Chen, H. and Sturrock, R. N. (2017), Saturated genic SNP mapping identified functional

candidates and selection tools for the *Pinus monticola* Cr2 locus controlling resistance to white pine blister rust. *Plant Biotechnol J*, 15: 1149–1162. doi:10.1111/pbi.12705\*\*

Liu J-J, Sniezko RA, Murray M, Wang N, Chen H, Zamany A, Sturrock RN, Savin D, Kegley A. (2016) Genetic Diversity and Population Structure of Whitebark Pine (*Pinus albicaulis* Engelm.) in Western North America. *PLoS ONE* 11(12): e0167986. doi:10.1371/journal.pone.0167986

Sniezko, Richard A; Danchok, Robert; Savin, Douglas P.; Liu, Jun-Jun; Kegley, Angelia. 2016. Genetic resistance to white pine blister rust in limber pine (*Pinus flexilis*): major gene resistance in a northern population. *Can. J. Forest Research*. 46 (9):1173-1178 doi:10.1139/cjfr-2016-0128.

Dudley, NS; Jones, TC; James, RL; Sniezko, RA; Canon, P; Borthakur, D. 2015. Applied disease screening and selection program for resistance to vascular wilt in Hawaiian *Acacia koa*. *Southern Forests*. 77(1):65-73.

Sniezko, R.A.; Smith, J.; Liu, J-J.; Hamelin, R.C. 2014. Genetic Resistance to Fusiform Rust in Southern Pines and White Pine Blister Rust in White Pines—A Contrasting Tale of Two Rust Pathosystems—Current Status and Future Prospects. *Forests* 2014, 5(9), 2050-2083; doi:[10.3390/f5092050](https://doi.org/10.3390/f5092050)

Liu, Jun-Jun; Sniezko, R.A.; Sturrock, RN; Chen, H. 2014. Western white pine SNP discovery and high-throughput genotyping for breeding and conservation applications. *BMC Plant Biology*. 14:380. DOI 10.1186/s12870-014-0380-6.

Liu, Jun-Jun; Sturrock, Rona N.; Sniezko, Richard A.; Williams, Holly; Benton, Ross; Zamany, Arezoo. 2015. Transcriptome analysis of the white pine blister rust pathogen *Cronartium ribicola*: De novo assembly, expression profiling, and identification of candidate effectors. *BMC Genomics*.

Schoettle, AW.; Sniezko, RA.; Kegley, A.; Burns, K S. 2014. White pine blister rust resistance in limber pine: evidence for a major gene. *Phytopathology* 104(2):163-173.

Sniezko, RA 2006. Resistance breeding against nonnative pathogens in forest trees — current successes in North America. Canadian Journal of Plant Pathology. 28: S270–S279

Kinloch, BB, Jr; Sniezko, RA; Dupper GE. 2004. Virulence gene distribution and dynamics of the white pine blister rust pathogen in western North America. Phytopathology. 94(7):751–758

Kinloch, BB, Jr.; Sniezko RA; Dupper, GE. 2003. Origin and distribution of *Cr2*, a gene for resistance to white pine blister rust in natural populations of western white pine. *Phytopathology*. 93 (6): 691–694.

Sniezko, Richard A.; Man, Gary; Hipkins, Valerie; Woeste, Keith; Gwaze, David; Kliejunas, John T.; McTeague, Brianna A., tech. cords. 2017. Gene conservation of tree species—banking on the future. Proceedings of a workshop. Gen. Tech. Rep. PNW-GTR-963. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 206 p. <https://www.fs.usda.gov/treearch/pubs/55062>

Schoettle, Anna W.; Sniezko, Richard A.; Kliejunas, John T., eds. 2018. Proceedings of the IUFRO joint conference: Genetics of five-needle pines, rusts of forest trees, and Strobosphere; 2014 June 15-20; Fort Collins, CO. Proc. RMRS-P-76. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 245 p. <https://www.fs.usda.gov/treearch/pubs/56054>

[Sniezko, Richard A.; Smith, Jim. 2017. Back to the future: genetics and our northwest forests. \*Western Forester\*. 62 \(3\): 1-4. \[http://www.forestry.org/sites/default/files/WFSeptOct17final.pdf\]\(https://www.forestry.org/sites/default/files/WFSeptOct17final.pdf\).](https://www.forestry.org/sites/default/files/WFSeptOct17final.pdf)

Sniezko, Richard. 2017. Saving our trees and forests through resistance breeding. *Western Forester*. 62(3): 28-29. <http://www.forestry.org/sites/default/files/WFSeptOct17final.pdf>

Sniezko, Richard A.; Yanchuk, Alvin D.; Kliejunas, John T.; Palmieri, Katharine M.; Alexander, Janice M.; Frankel, Susan J., tech. coords. 2012. Proceedings of the fourth international workshop on the genetics of host-parasite interactions in forestry: Disease and insect resistance in forest trees. Gen. Tech. Rep. PSW-GTR-240. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. 372 p.

**Goheen, E.M.; and Sniezko, R.A. 2007. Whitebark pine and other high elevation five-needle pines in Pacific Coast ecosystems: a conference preface.** (74K pdf file) Written remarks. In Goheen, E. M.; and Sniezko, R.A., tech. coords. Proceedings of the conference whitebark pine: a Pacific Coast perspective. 2006 August 27-31. Ashland, OR. R6-NR-FHP-2007-01. Portland, OR: Pacific Northwest Region, Forest Service, U.S. Department of Agriculture; p. 1-3.

V. ADDITIONAL INFORMATION. If there are relevant aspects of your background or present circumstances not addressed above that might reasonably be construed by others as affecting your judgment in matters within the topics addressed in the Species Status Assessment Report, and therefore might constitute an actual or potential source of bias, please describe them briefly.

none

## PART II CONFLICT OF INTEREST DISCLOSURE

### INSTRUCTIONS

It is essential that a peer reviewer used by the U.S. Fish and Wildlife Service as part of its peer review of Species Status Assessments under the ESA not be compromised by conflict of interest. For this purpose, **the term “conflict of interest” means any financial or other interest which conflicts with the service of the individual because it (1) could significantly impair the individual’s objectivity or (2) could create an unfair competitive advantage for any person or organization.**<sup>1</sup> Except for those situations in which the Service determines that a conflict of interest is unavoidable and promptly and publicly discloses the conflict of interest, no individual can participate in a peer review process used by the Service in a Species Status Assessment if the individual has a conflict of interest that is relevant to the functions to be performed.

The term “conflict of interest” means something more than individual bias. There must be an *interest* that could be directly affected by your participation as a peer reviewer.

Conflict of interest requirements are *objective* and *prophylactic*. They are not an assessment of one’s actual behavior or character, one’s ability to act objectively despite the conflicting interest, or one’s relative insensitivity to particular dollar amounts of specific assets because of one’s personal wealth. Conflict of interest requirements are objective standards designed to eliminate certain specific, potentially compromising situations from arising, and thereby to protect the individual, the Service, and the public interest. The individual and the Service should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the information produced through the peer review simply because of the existence of conflicting interests.

The term “conflict of interest” applies only to *current interests*. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future but do not currently exist, because such future interests are inherently speculative and uncertain. For example, a pending formal or informal application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is not a current interest.

The term “conflict of interest” applies not only to the personal interests of the individual but also to the *interests of others* with whom the individual has substantial common financial or other interests if these interests are relevant to the functions to be performed. Thus, in assessing an individual’s potential conflicts of interest, consideration

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<sup>1</sup> This definition and the other information in these instructions are drawn from the National Academy of Sciences Policy on Committee Composition and Balance and Conflicts of Interest for Committees Used in the Development of Reports (May 12, 2003).

must be given not only to the interests of the individual but also to the interests of the individual's spouse and minor children, the individual's employer, the individual's business partners, and others with whom the individual has substantial common financial or other interests. Consideration must also be given to the interests of those for whom one is acting in a fiduciary or similar capacity (e.g., being an officer or director of a corporation, whether profit or nonprofit, or serving as a trustee).

Such interests could include an individual's stock holdings in excess of \$10,000 in a potentially affected company or being an officer, director, or employee of the company. Serving as a consultant to the company could constitute such an interest if the consulting relationship with the company could be directly affected or is directly related to the subject matter of the regulatory process.

An individual's other possible interests might include, for example, relevant patents and other forms of intellectual property, serving as an expert witness in litigation directly related to the subject matter of the regulatory process, or receiving research funding from a party that would be directly affected by the regulatory process if the research funding could be directly affected or is directly related to the subject matter of the regulatory process and the right to independently conduct and publish the results of this research is limited by the sponsor. Consideration would also need to be given to the interests of others with whom the individual has substantial common financial interests -- particularly spouses, employers, clients, and business or research partners.

The following questions are designed to elicit information from you concerning possible conflicts of interest that are relevant to the functions to be performed by your peer review.

1. EMPLOYMENT. (a) If the information received by the Service through the peer review process were to provide the basis for government regulatory action or inaction with respect to the whitebark pine -- N/A

(i) If you are employed or self-employed, could your current employment or self-employment (or your spouse's current employment or self-employment) be directly affected?

(ii) To the best of your knowledge, could any financial interests of your (or your spouse's) employer or, if self-employed, your (or your spouse's) clients and/or business partners be directly affected?

(iii) If you are an officer, director or trustee of any corporation or other legal entity, could the financial interests of that corporation or legal entity be directly affected?

(iv) If you are a consultant (whether full-time or part-time), could there be a direct effect on any of your current consulting relationships?

(v) Regardless of the potential effect on the consulting relationship, do you have any current or continuing consulting relationships (including, for example, commercial and professional consulting and service arrangements, scientific and technical advisory board memberships, serving as an expert witness in litigation, or providing services in exchange for honorariums and travel expense reimbursements) that are directly related to the subject matter of the possible government regulatory action or inaction?

(b) If you are or have ever been a U.S. Government employee (either civilian or military), to the best of your knowledge are there any federal conflict of interest restrictions that may be applicable to your service in connection with this peer review? NO

(c) If you are a U.S. Government employee, are you currently employed by the Service? YES

**If the answer to all of the above questions under EMPLOYMENT is either “no” or “not applicable,” check here \_\_\_\_\_ (NO).**

**If the answer to any of the above questions under EMPLOYMENT is “yes,” check here   X   (YES), and briefly describe the circumstances on the last page of this form.**

2. INVESTMENT INTERESTS. Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interest valued at less than \$10,000), if the information received by the Service through the peer review process were to provide the basis for government regulatory action or inaction with respect to the whitebark pine --

(a) Do you or your spouse or minor children own directly or indirectly (e.g., through a trust or an individual account in a pension or profit-sharing plan) any stocks, bonds or other financial instruments or investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments?

(b) Do you have any other significant financial investments or interests such as commercial business interests (e.g., sole proprietorships), investment interests (e.g., stock options), or personal investment relationships (e.g., involving parents or grandchildren) that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments?

**If the answer to all of the above questions under INVESTMENT INTERESTS is either “no” or “not applicable,” check here   X   (NO).**

**If the answer to any of the above questions under INVESTMENT INTERESTS is “yes,” check here \_\_\_\_ (YES), and briefly describe the circumstances on the last page of this form.**

3. PROPERTY INTERESTS. Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, if the information received by the Service through the peer review process were to provide the basis for government regulatory action or inaction with respect to the whitebark pine -  
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(a) Do you or your spouse or minor children own directly or indirectly any such property interests that could be directly affected?

(b) To the best of your knowledge, do any others with whom you have substantial common financial interests (e.g., employer, business partners, etc.) own directly or indirectly any such property interests that could be directly affected?

**If the answer to all of the above questions under PROPERTY INTERESTS is either “no” or “not applicable,” check here  X  (NO).**

**If the answer to any of the above questions under PROPERTY INTERESTS is "yes," check here \_\_\_\_ (YES), and briefly describe the circumstances on the last page of this form.**

4. RESEARCH FUNDING AND OTHER INTERESTS. (a) Taking into account your research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), if the information received by the Service through the peer review process were to provide the basis for government regulatory action or inaction with respect to the whitebark pine --

(i) Could the research funding and support for you or your close research colleagues and collaborators be directly affected, or

(ii) If you have any research agreements for current or continuing research funding or support from any party whose financial interests could be directly affected, and such funding or support is directly related to the subject matter of the regulatory process, do such agreements significantly limit your ability to independently conduct and publish the results of your research? NO

(b) Is the central purpose of the Species Status Assessment Report for which this disclosure form is being prepared a critical review and evaluation of your own work or that of your employer? NO

(c) Do you have any existing professional obligations (e.g., as an officer of a scientific or engineering society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the Species Status Assessment Report?  
NO

(d) To the best of your knowledge, will your participation in this peer review process enable you to obtain access to a competitor's or potential competitor's confidential proprietary information? NO

(e) Could your service as a peer reviewer create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests? NO

**If the answer to all of the above questions under RESEARCH FUNDING OR OTHER INTERESTS is either "no" or "not applicable," check here  (NO).**

**If the answer to any of the above questions under RESEARCH FUNDING OR OTHER INTERESTS is "yes," check here  (YES), and briefly describe the circumstances below.**

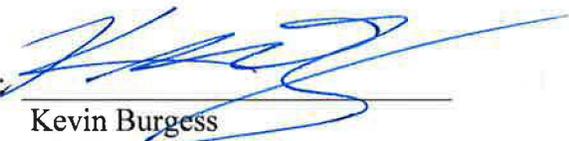
EXPLANATION OF "YES" RESPONSES:

Currently, Center Geneticist with USDA Forest Service (federal employee)

*During your period of service in connection with the activity for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the responsible staff officer.*

/s/ Richard A. Sniezko\_\_\_\_\_  
YOUR SIGNATURE

\_\_\_\_9/8/2018\_\_\_\_\_  
DATE

Received by:   
Kevin Burgess  
U.S. Fish and Wildlife Service  
Mountain Prairie Regional Office  
Listing Biologist

\_\_\_\_9/8/2018\_\_\_\_\_  
Date