
OSAC Friction Ridge Subcommittee Progress Update and Q&A

Henry Swofford, Josh Connelly, and Carey Hall

Executive Committee

Friction Ridge Subcommittee (FRS)

Organization for Scientific Area Committees for Forensic Science (OSAC)

IAI – Nashville, TN

August 4, 2021

Disclaimer

The opinions or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the National Institute of Standards and Technology (NIST) or the Organization of Scientific Area Committees (OSAC).

OSAC and Standards Development

- OSAC was established in 2014 to replace SWGs
- OSAC is administered by the National Institute of Standards and Technology (NIST)
- OSAC is responsible for

"facilitating the development and promoting the use of high-quality, technically sound standards. These standards define minimum requirements, best practices, standard protocols and other guidance to help ensure that the results of forensic analysis are reliable and reproducible."

OSAC Structure

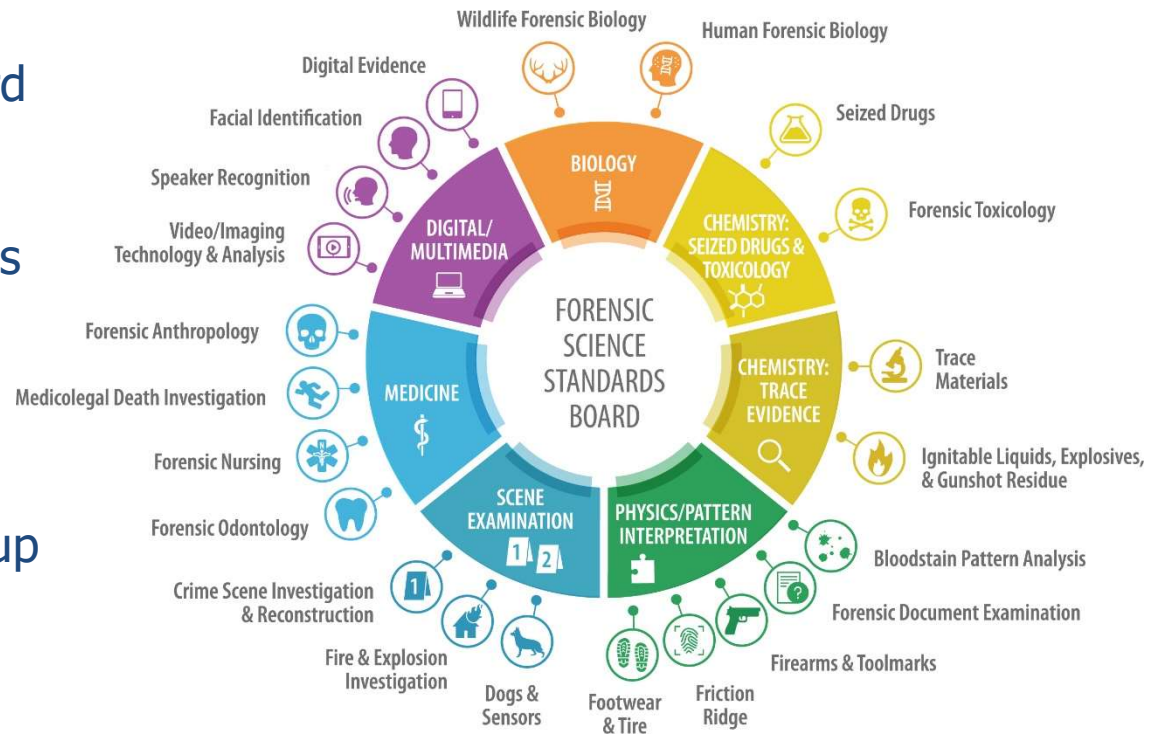
Forensic Science Standards Board (FSSB)

Seven Scientific Area Committees (SACs)

22 Subcommittees (SCs)

FSSB Task Groups (these make up STRPs):

- Quality
- Statistics
- Human factors
- Legal
- Terminology

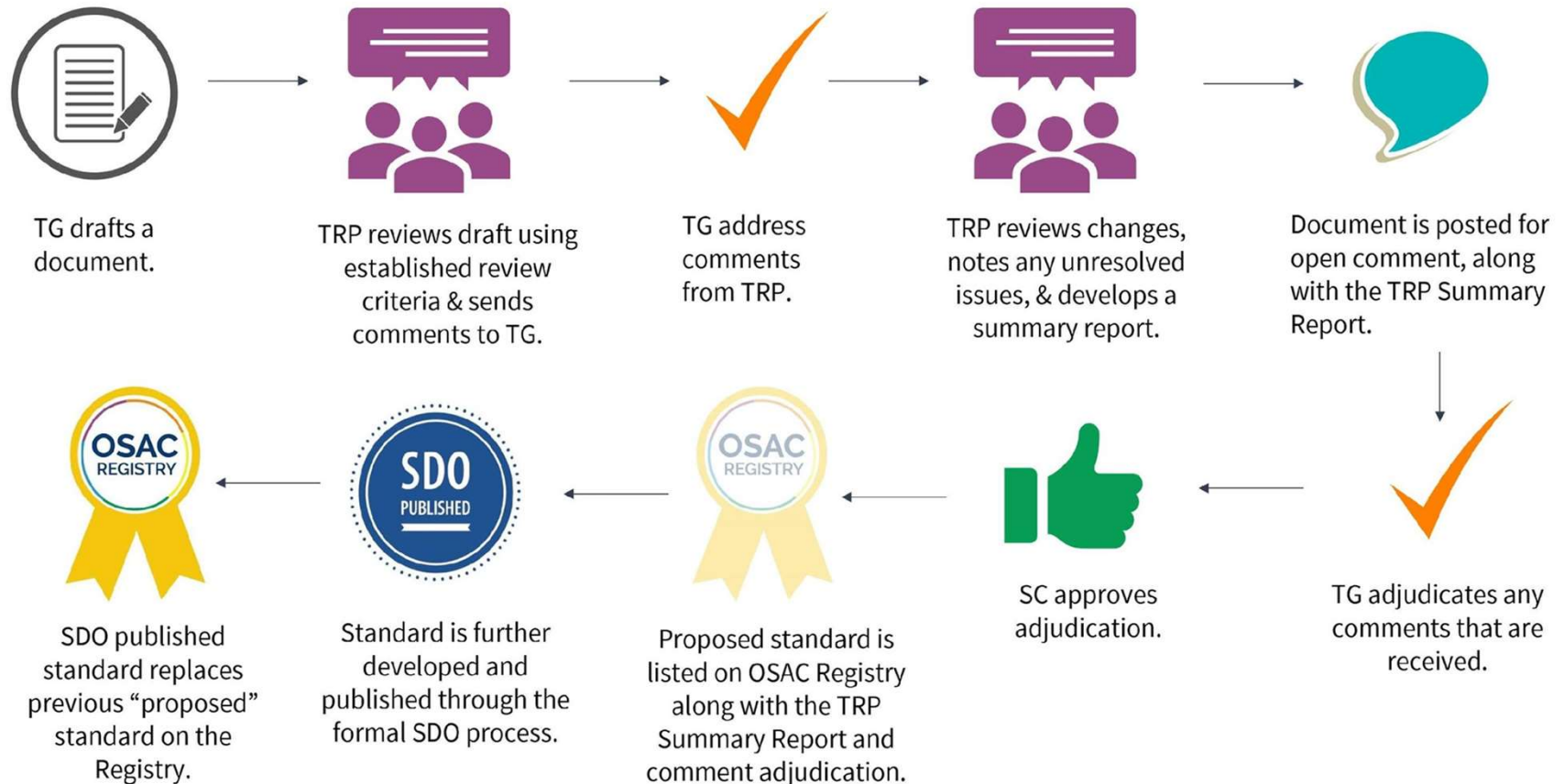


OSAC and Standards Development



- The OSAC Registry is a repository of high-quality, technically sound published *and* proposed standards for forensic science.
- *All* the standards on this registry (published and proposed) have passed a rigorous technical and quality review by OSAC members, including forensic science practitioners, research scientists, statisticians and legal experts.
- OSAC encourages the forensic science community to implement these published and proposed standards.

OSAC and Standards Development



Subcommittee Leadership

Chair – Henry Swofford

- HJS Consulting, LLC
- Term expiration: Sept. 30, 2023
- Email: hswofford@hotmail.com

Vice-Chair – Josh Connelly

- Douglas County Sheriff's Office
- Term expiration: Sept. 30, 2022
- Email: joshua.connelly@douglascounty-ne.gov

Executive Secretary – Carey Hall

- Minnesota BCA
- Term expiration: Sept. 30, 2022
- Email: carey.hall@state.mn.us

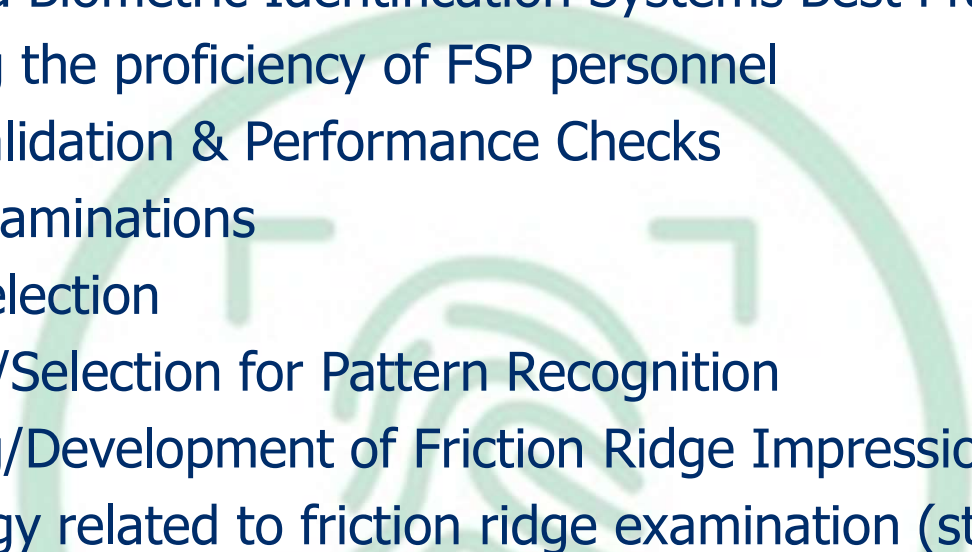
Subcommittee Breakdown

<u>Category</u>	<u>Current</u>	
Practitioner Total	13	65%
Federal	4	20%
State & Local	8	40%
Academia	4	20%
Private Sector (includes self-employed)	4	20%

Subcommittee Background

- Each SC no longer limited to 20 voting members
 - Executive committee decided kept SC membership to 16 voting members, 3 RC/FRS voting members, and 1 SC chair to align headcount with resources.
- Can have an 'unlimited' number of affiliate members and increase, as needed.
- Affiliates are a great way to on-board for a particular topic and serve on a TG – they can't vote but can provide extremely valuable insight and can turn into voting members at a later date

Documents Under Development

1. Automated Biometric Identification Systems Best Practices
 2. Monitoring the proficiency of FSP personnel
 3. Method Validation & Performance Checks
 4. Limited Examinations
 5. Feature Selection
 6. Recruiting/Selection for Pattern Recognition
 7. Processing/Development of Friction Ridge Impressions
 8. Terminology related to friction ridge examination (standing)
- 
- A large, faint, light green watermark of a fingerprint is centered in the background of the slide. The fingerprint is shown from a top-down perspective, with a circular border around it and four corner brackets indicating its position.

Published Proposed Standards & BPRs

1. Standard for Examining Friction Ridge Impressions
2. Best Practice Recommendation for Analysis of Friction Ridge Impressions
3. Best Practice Recommendation for Comparison and Evaluation of Friction Ridge Impressions
4. Best Practice Recommendation for Testimony Monitoring
5. Best Practice Recommendation for Articulating a Source Identification in Friction Ridge Examination
6. Standard for Friction Ridge Examination Conclusions
7. Standard for Friction Ridge Examination Training Program
8. Best Practice Recommendations for Technical Review in Friction Ridge Identification
9. Best Practice Recommendations for the Resolution of Conflicts in the Course of Friction Ridge Examination
10. Best Practice Recommendations for the Verification Component in Friction Ridge Examination
11. Standard for Reporting Results from Friction Ridge Examinations
12. Standard for Consultation During Friction Ridge Examination

Published Proposed Standards & BPRs

All [Tier 3] documents listed below are completed work products of the OSAC Friction Ridge Subcommittee and have passed a rigorous technical and quality review by the subcommittee. The subcommittee encourages the forensic science community to implement these proposed standards.

Published Proposed Standards & BPRs




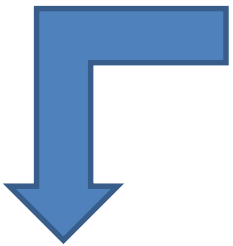
1. Standard for Examining Friction Ridge Impressions
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3. Best Practice Recommendation for Comparison and Evaluation of Friction Ridge Impressions

4. Best Practice Recommendation for Testimony Monitoring
5. Best Practice Recommendation for Articulating a Source Identification in Friction Ridge Examination



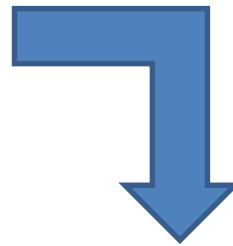
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OSAC FRS Proposed Examination Trio



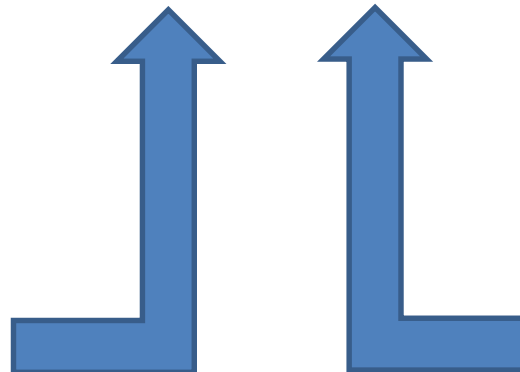
Standard for Examining Friction Ridge Impressions

*Friction Ridge Subcommittee
Physics/Pattern Scientific Area Committee
Organization of Scientific Area Committees (OSAC) for Forensic Science*



Best Practice Recommendation for Analysis of Friction Ridge Impressions

*Friction Ridge Subcommittee
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Organization of Scientific Area Committees (OSAC) for Forensic Science*



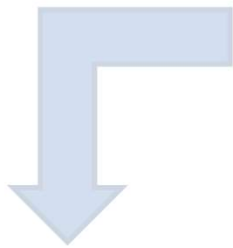
Best Practice Recommendation for Comparison and Evaluation of Friction Ridge Impressions

*Friction Ridge Subcommittee
Physics/Pattern Scientific Area Committee
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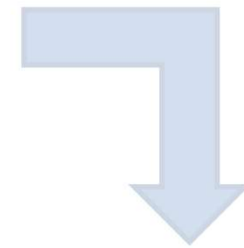
Defines minimum requirements for FSP policies & procedures

OSAC Proposed Examination Trio



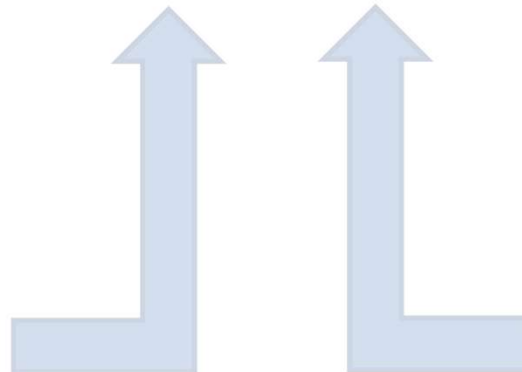
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Best Practice Recommendation for Analysis of Friction Ridge Impressions

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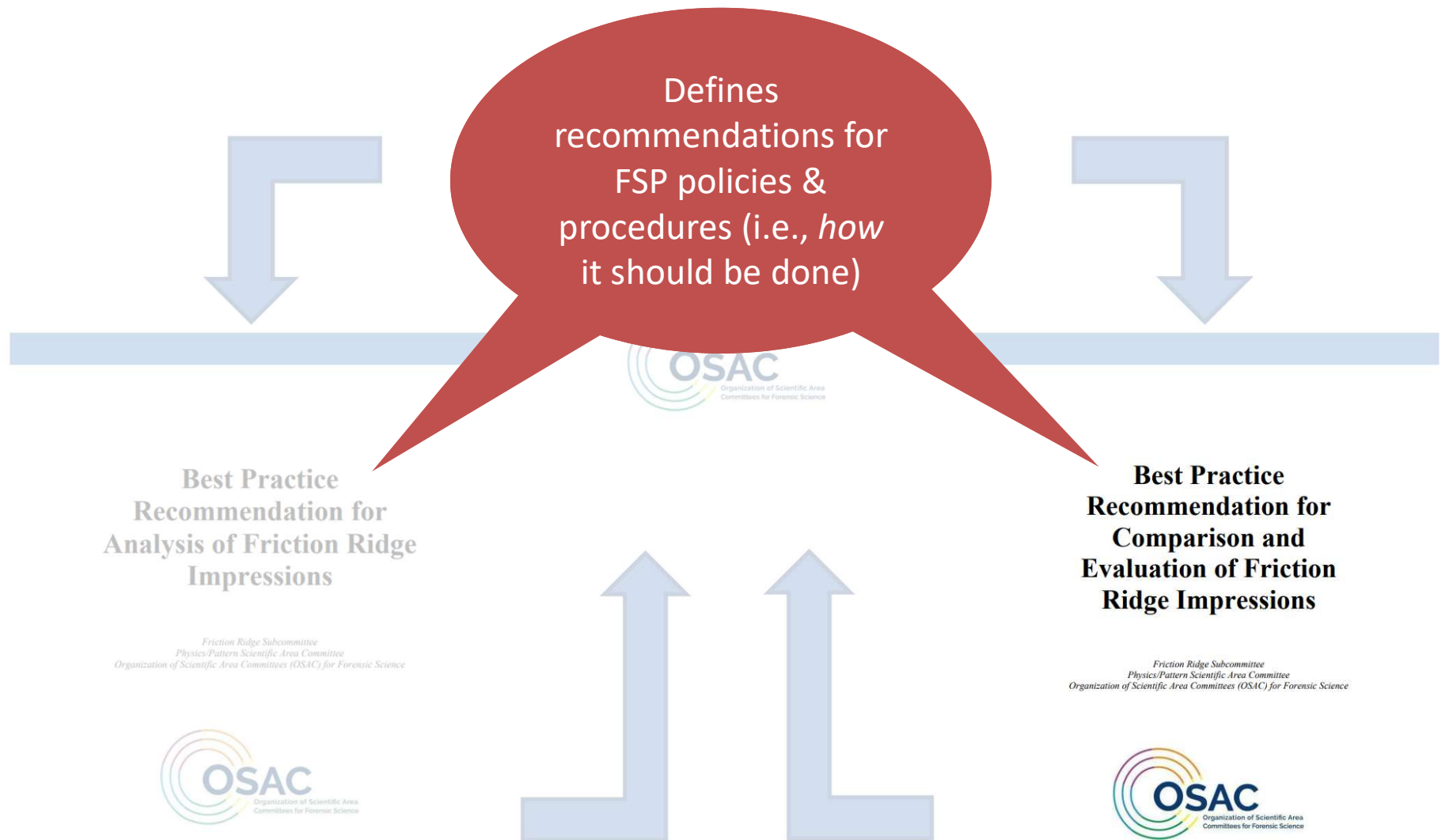


Best Practice Recommendation for Comparison and Evaluation of Friction Ridge Impressions

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OSAC FRS Proposed Examination Trio



OSAC FRS Proposed Std for Examination

Standard for Examining Friction Ridge Impressions

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The FSP *shall* . . .

- Define features that may be used for examination
- Define criteria for utility decisions and source conclusions
- Define criteria for designating impressions as “complex”
- Document observed data (i.e., features + quality) necessary to support source conclusions.
- Routinely monitor examiners’ performance related to detection, documentation, and interpretation.

OSAC FRS Proposed BPR for Analysis

Criteria for Quality Designation*

**Best Practice
Recommendation for
Analysis of Friction Ridge
Impressions**

Friction Ridge Subcommittee
Physics/Pattern Scientific Area Committee
Organization of Scientific Area Committees (OSAC) for Forensic Science



*may be determined subjectively or through automated quality software

Category 5	All Observed Data are definitive
Category 4	Definitive ridge edges; debatable pores
Category 3	Definitive minutiae; debatable ridge edges
Category 2	Definitive ridge flow; debatable minutiae
Category 1	Debatable ridge flow
Category 0	Background

OSAC FRS Proposed BPR for Analysis

Criteria for *Impression* Complexity Designation

Best Practice Recommendation for Analysis of Friction Ridge Impressions

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Non-Complex Impression:

- Greater than 15 minutiae designated as Category 3 (green) quality or higher; or at least 12 minutiae designated as Category 4 (blue) quality or higher.
- The observed data provides strong indication of the anatomical region and orientation

Low-Complexity Impression:

- Between 8 and 15 minutiae designated as Category 3 (green) quality or higher; or between 5 and 12 minutiae designated as Category 4 (blue) quality or higher.
- The observed data does not provide a strong indication of the anatomical region and orientation

High-Complexity Impression:

- Fewer than 8 minutiae designated as Category 3 (green) quality or higher; or fewer than 5 minutiae designated as Category 4 (blue) quality or higher.

OSAC FRS Proposed BPR for Comparison & Evaluation

Criteria for *Comparison* Complexity Designation

**Best Practice
Recommendation for
Comparison and
Evaluation of Friction
Ridge Impressions**

Friction Ridge Subcommittee
Physics/Pattern Scientific Area Committee
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Three Categories:

- Non-Complex Comparison
- Low-Complexity Comparison
- High-Complexity Comparison

Criteria accounts for:

- The complexity designation for each impression
- Whether the Observed Data provide strong indications of anatomical region
- Whether the Observed Data provide strong indications of orientation
- Whether the Observed Data in overlapping regions of impressions are designated as Category 3 (green) quality or higher
- Any differences in feature interpretations after exposure to the exemplar impression.

OSAC FRS Proposed BPR for Comparison & Evaluation

Criteria for Source Conclusions

Best Practice Recommendation for Comparison and Evaluation of Friction Ridge Impressions

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Source Identification:

- Observed Data in relevant areas of both impressions are present and designated as Category 2 (yellow) quality or higher during Analysis
- Observed Data between the impressions correspond
- The corresponding data include at least 8 minutiae designated as Category 3 (green) quality or higher and documented during Analysis.

Source Exclusion:

- Observed Data in relevant areas of both impressions are present and designated as Category 2 (yellow) quality or higher during Analysis
- Observed Data between the impressions do not correspond.

OSAC FRS Proposed Std for Conclusions

Standard for Friction Ridge Examination Conclusions

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5 allowable (not required) conclusions

1. **Source Exclusion** is the conclusion that two friction ridge impressions did not originate from the same source.
2. **Support for Different Sources** is the conclusion that the observations provide more support for the proposition that the impressions originated from different sources rather than the same source; however, there is insufficient support for a Source Exclusion. The degree of support may range from limited to strong or similar descriptors of the degree of support. Any use of this conclusion shall include a statement of the degree of support and the factor(s) limiting a stronger conclusion.
3. **Inconclusive / Lacking Support** is the conclusion that the observations do not provide a sufficient degree of support for one proposition over the other. Any use of this conclusion shall include a statement of the factor(s) limiting a stronger conclusion.
4. **Support for Same Source** is the conclusion that the observations provide more support for the proposition that the impressions originated from the same source rather than different sources; however, there is insufficient support for a Source Identification. The degree of support may range from limited to strong or similar descriptors of the degree of support. Any use of this conclusion shall include a statement of the degree of support and the factor(s) limiting a stronger conclusion.
5. **Source Identification** is the strongest degree of association between two friction ridge impressions. It is the conclusion that the observations provide extremely strong support for the proposition that the impressions originated from the same source and extremely weak support for the proposition that the impressions originated from different sources.

OSAC FRS Proposed Std for Conclusions

Standard for Friction Ridge Examination Conclusions

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Qualifications and Limitations

- An examiner shall not assert that a source identification is the conclusion that two impressions were made by the same source or imply an individualization to the exclusion of all other sources.
- An examiner shall not suggest that the offered conclusion is an expression of absolute certainty.
- An examiner shall not assert or imply that latent print examination is infallible or has a zero-error rate.
- An examiner shall not cite the number of latent print comparisons performed in his or her career as a measure for the accuracy of a conclusion offered in the case at hand.
- An examiner shall not use the expression 'reasonable degree of scientific certainty' or similar assertions as a description of the confidence held in his or her conclusion.

OSAC FRS Proposed Std for Reporting Results

Standard for Reporting Results from Friction Ridge Examinations

Friction Ridge Subcommittee
Physics/Pattern Scientific Area Committee
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Technical information that *shall* be included in the written report:

- Any deviation from FSP approved examination methodologies, policy and/or procedure.
- Statement describing that analysis was performed and all the resulting utility decisions of friction ridge impressions.
- A summary of the search results for ABIS searches conducted (Note: this is not intended to require or recommend the inclusion of all individual candidates generated as a result of a database search).

OSAC FRS Proposed Std for Reporting Results

Standard for Reporting Results from Friction Ridge Examinations

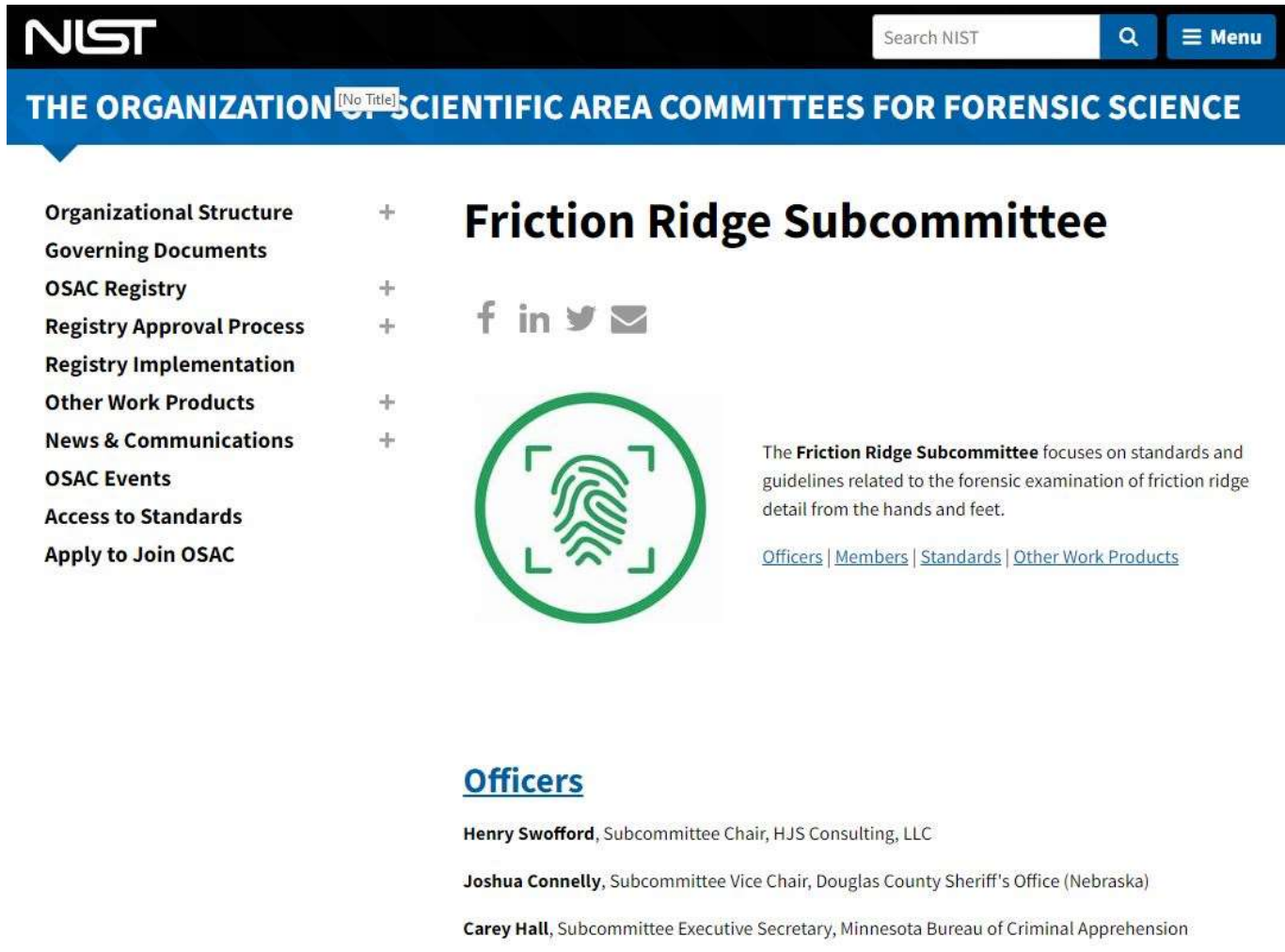
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The following information related to examination conclusions *shall* be included in the written report:

- Only comparisons which have been conducted shall be reported (i.e., a comparison must be completed to render a Source Exclusion or Support for Different Source conclusion).
- All non-verified Source Identifications, Support for Same Source, and Source Exclusions included in the written report shall be clearly delineated. The limitations of the assessments shall be clearly indicated, as shall the process to have the conclusion verified.
- Where an Inconclusive/Lacking Support conclusion is included, a statement detailing the reasons for this conclusion.
- Statement when a reported conclusion was the result of a conflict resolution process or consensus review and FSP policy (e.g. FSP policy dictates the most conservative conclusion is reported out).

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The screenshot displays the NIST website's navigation menu on the left, which includes links for Organizational Structure, Governing Documents, OSAC Registry, Registry Approval Process, Registry Implementation, Other Work Products, News & Communications, OSAC Events, Access to Standards, and Apply to Join OSAC. The main content area features the title "Friction Ridge Subcommittee" with social media icons for Facebook, LinkedIn, Twitter, and Email. Below this is a circular logo containing a fingerprint. A descriptive paragraph states that the committee focuses on standards and guidelines for friction ridge detail. At the bottom, there is a section titled "Officers" listing Henry Swofford as Subcommittee Chair, Joshua Connelly as Subcommittee Vice Chair, and Carey Hall as Subcommittee Executive Secretary.


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Friction Ridge Subcommittee

f in t e



The **Friction Ridge Subcommittee** focuses on standards and guidelines related to the forensic examination of friction ridge detail from the hands and feet.

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Officers

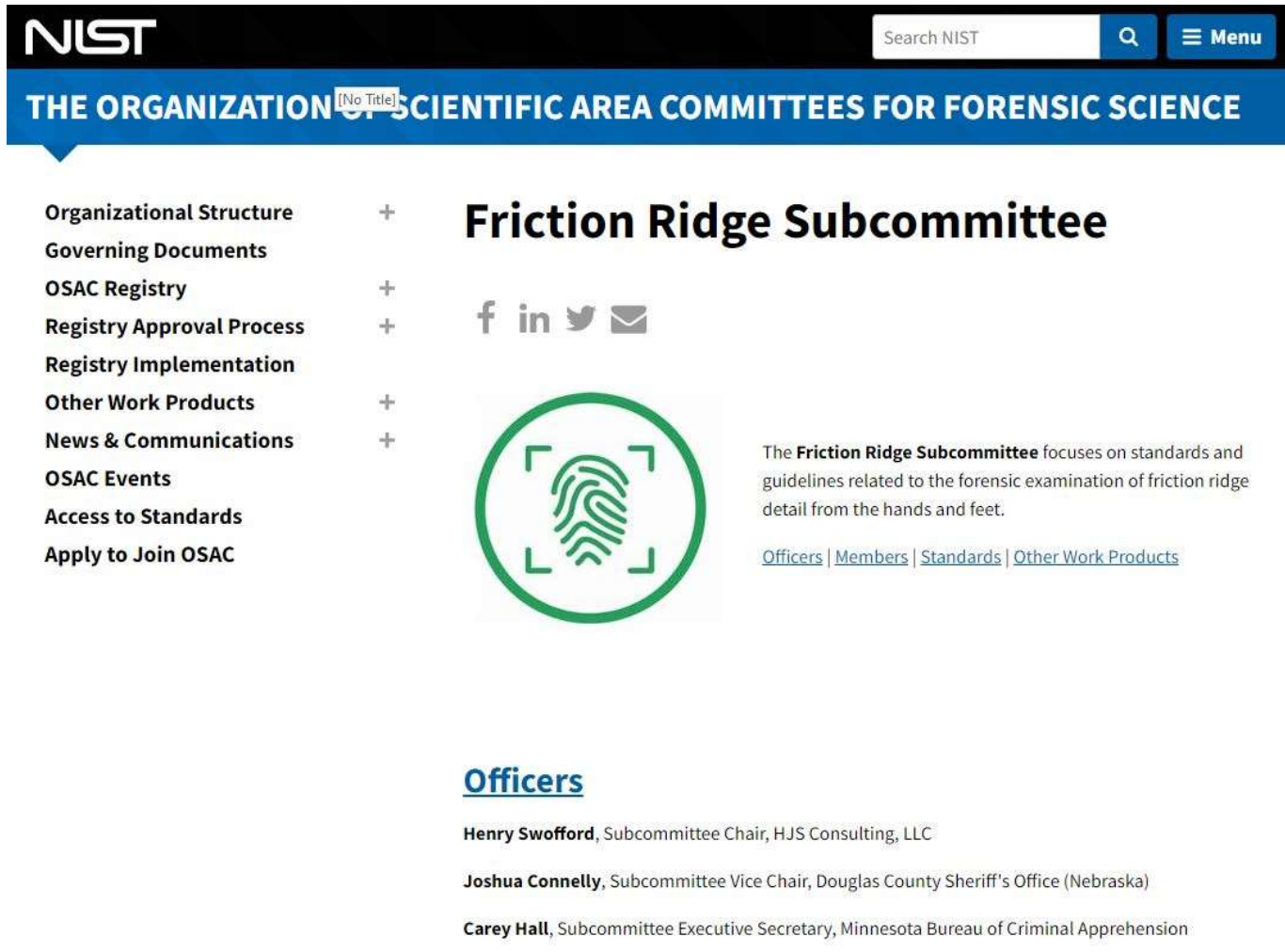
Henry Swofford, Subcommittee Chair, HJS Consulting, LLC

Joshua Connelly, Subcommittee Vice Chair, Douglas County Sheriff's Office (Nebraska)

Carey Hall, Subcommittee Executive Secretary, Minnesota Bureau of Criminal Apprehension

<https://www.nist.gov/osac/friction-ridge-subcommittee>

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f in t e



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Officers

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Joshua Connelly, Subcommittee Vice Chair, Douglas County Sheriff's Office (Nebraska)

Carey Hall, Subcommittee Executive Secretary, Minnesota Bureau of Criminal Apprehension

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OSAC Communications



- Provides monthly updates on forensic science standards moving through development process at SDOs and those moving through OSAC Registry process
- Available on OSAC's website: <https://www.nist.gov/topics/organization-scientific-area-committees-forensic-science/osac-standards-bulletin>



- Quarterly communication that provides updates on OSAC's program status, activities, accomplishments, and opportunities for public input with internal and external audiences.
- Available on OSAC's website: <https://www.nist.gov/topics/organization-scientific-area-committees-forensic-science/osac-newsletter>



- Follow us! <https://www.linkedin.com/showcase/organization-of-scientific-area-committees-osac-for-forensic-science/>

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Review and
comment on
documents



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Contact

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HJS Consulting, LLC
hswofford@hotmail.com

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