Priority Action Report

Friction Ridge Subcommittee

SAC Physics/Pattern

Habeas Assistance and Training Counsel Project, Eighth National Seminar on Forensic Evidence and the Criminal Law “Fingerprint Evidence,” April 27, 2019, Denver, Colorado.

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

Subcommittee Leadership

- **Chair:** Henry Swofford
  - Defense Forensic Science Center
  - Term expiration September 30, 2020
  - Email: Henry.J.Swofford.Civ@mail.mil

- **Vice Chair:** Thomas Wortman
  - Defense Forensic Science Center
  - Term expiration September 30, 2021
  - Email: Thomas.M.Wortman.Civ@mail.mil

- **Executive Secretary:** Maria Ruggiero
  - Los Angeles County Sheriff's Office
  - Term expiration September 30, 2019
  - Email: mcruggie@lasd.org

Subcommittee Membership

• Black, John P.	Black & White Forensics, LLC	2021	john@bwforensics.com
• Brock, Steven	Santa Clara County Sheriff's Office	2021	Steve.Brock@shf.sccgov.org
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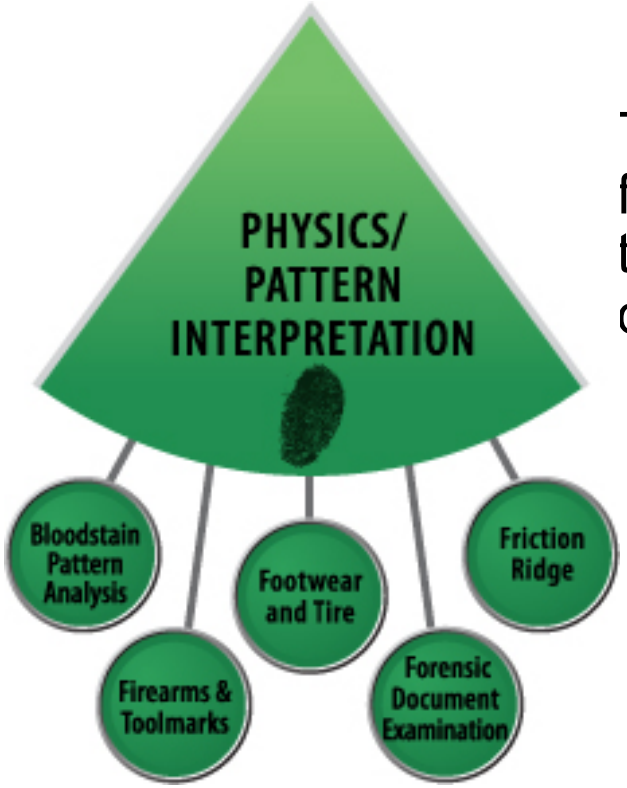
• Zinn, Lisa M.	Orange County Sheriff's Crime Laboratory	2019	lzinn@occl.ocgov.com

Subcommittee Breakdown

Category	Target	-	Current	-
Practitioner Total	14	70%	17	85%
Federal	4	20%	3	15%
State and Local	6	30%	9	45%
Civil and Other	4	20%	3	15%
Researchers and Scientists	4	20%	4	20%
R&D Technology	2	10%	1	5%

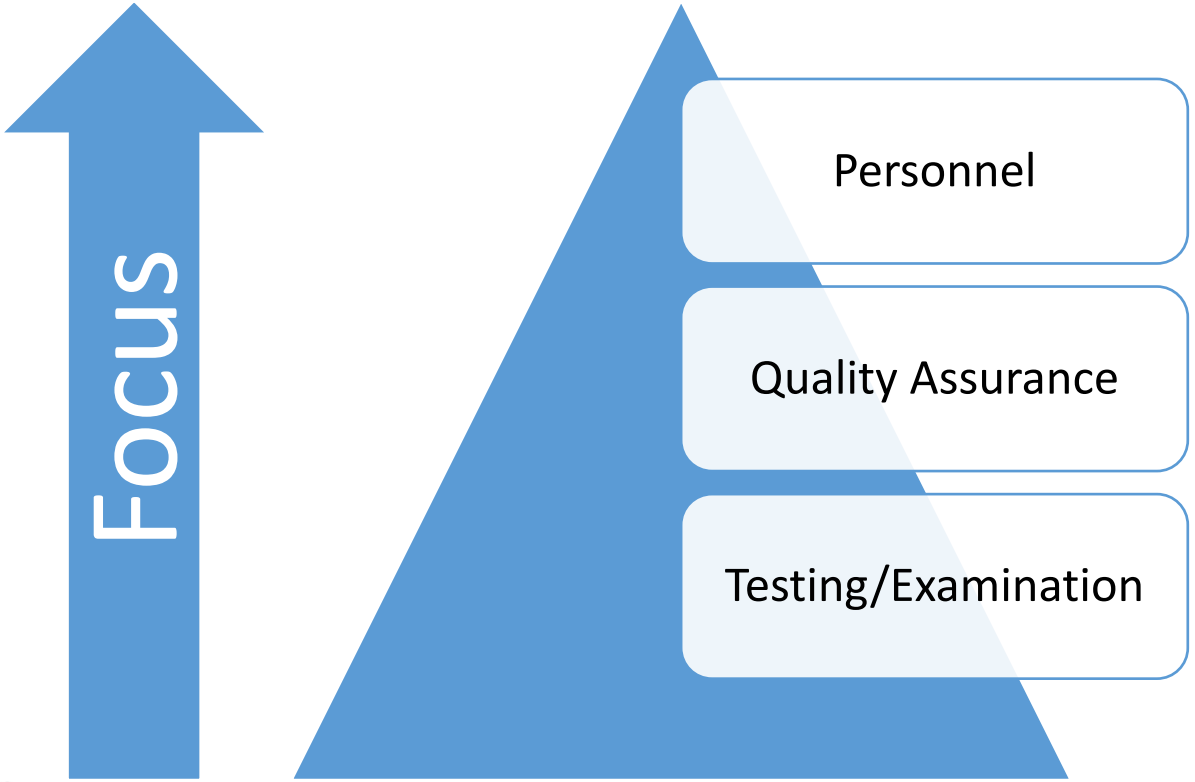
Scope



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

Roadmap

- *Current* Strategic Priority:
  - Promulgation of standards and guidelines related to the **examination**, **interpretation**, and **reporting** of friction ridge evidence



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Documents Completed (at SDO)

✓Standard for Friction Ridge Examination Conclusions

✓ Standard for Friction Ridge Examination Training

✓Guideline for the Articulation of the Decision-Making Process Leading to an Expert Opinion of Source Identification in Friction Ridge Examinations

- Document drafts publically available online:
  - https://www.nist.gov/topics/forensic-science/friction-ridge-subcommittee

Update → Standard for Conclusions

- Defines terms and qualitative expressions of source conclusions that may be reached following friction ridge comparisons.

- Five conclusion scale
  - Source Exclusion
  - Support for different sources
  - Inconclusive/Lacking Support
  - Support for same source
  - Source Identification

- Source Identification:
  - Strongest degree of association between two friction ridge impressions
  - Expressed as a “strength of evidence” statement

Update → Standard for Conclusions

- **Source Identification**: 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.

- Source Identification is reached when the friction ridge impressions have corresponding ridge detail and the examiner would not expect to see the same arrangement of details repeated in an impression that came from a different source.

- **Qualifications & 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.

Documents in Progress

- Examination Method
  - Analysis
  - Comparison/Evaluation
- Consultation
- Verification
- Technical Review
- Reporting Results
- Conflict Resolution
- ACE-V Process Map
- ABIS Best Practices
- Terminology

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Documents in Progress

Examination Method

- Prescribes minimum requirements of the analysis, comparison, and evaluation steps performed during the examination of friction ridge impressions, including:
  - The set of expected procedures that need to be implemented and their order
  - The procedures requiring validation
  - The required elements of analysis, comparison, and evaluation
  - The required minimum documentation for each procedure

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Documents in Progress

Analysis

- Describes the best practice recommendations for how to perform the analysis steps during the examination of friction ridge impressions.
    - Suitability criteria
    - Feature selection and associated confidence
    - Complexity criteria
    - Quality criteria
    - Documentation

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Documents in Progress

Comparison & Evaluation

- Describes the best practice recommendations for how to perform the comparison and evaluation steps during the examination of friction ridge impressions.
    - Method of comparison
    - Complex comparison criteria
    - Sufficiency criteria for conclusions
    - Assessment of similar and dissimilar characteristics between impressions
    - Assessment of the strength of the evidence
    - Determination of the appropriate conclusion
    - Documentation

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Documents in Progress

Consultation

- Describes the best practice recommendations for how to perform consultations during friction ridge impression examinations.

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Documents in Progress

Verification

- Describes the best practice recommendations for how to perform the verifications steps during friction ridge impression examinations.
    - Verification considerations (e.g. extent, utility, case type, approach)
    - Types of verification and application options
    - Documentation

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Documents in Progress

Technical Review

- Describes the best practice recommendations for how to perform the technical review of friction ridge impression examinations.

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Documents in Progress

Reporting Results

- Prescribes the minimum requirements that shall be included in friction ridge examination reports.

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Documents in Progress

Conflict Resolution

- Describes the best practice recommendations for how to resolve conflicts between examiners:
  - Conflicting suitability decisions
  - Conflicting evaluation conclusions
  - Documentation

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Documents in Progress

ACE-V Process Map

- Provides an interactive business process map illustrating the process of conducting friction ridge impression examinations.
  - Provides an interactive and illustrative interface for the friction ridge community
  - Codifies current practice
  - Identifies gaps and research needs for future practice
  - Dynamic document updating as the standards and best practices update

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Documents in Progress

ABIS Best Practices

- Describes the best practice recommendations for effective uses of Automated Biometric Identification Systems (ABIS):
  - Provides guidance to latent print and tenprint units
  - Stimulates further development of advanced capabilities by ABIS vendors
  - Addresses improvements to facilitate interoperability, including:
    - Acquisition of standards-compliant systems at the Federal, State and Local-Levels
    - Furthering connectivity efforts among law enforcement agencies
    - Improved governance structures to reflect the new interoperable environment
    - Developing mechanisms to test system performance and standards compliance
    - Expanded examiner training
  - Other ABIS related topics to improve performance and efficiency of friction ridge examinations

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Documents in Progress

Terminology

- Describes the terms and definitions commonly used by the friction ridge examination discipline.
  - Intended to reside in the OSAC Lexicon Library
  - Intended to be dynamic and updated as appropriate
  - Searchable for easy user interface

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Current Research Needs

- ACE-V Bias
- Assessing the Sufficiency and Strength of Friction Ridge Features
- Close Non-Match Assessment
- Examiner Consistency During Friction Ridge Feature Mark-Up
- Friction Ridge Statistical Modeling
- Latent Fingerprint Image Quality Usage

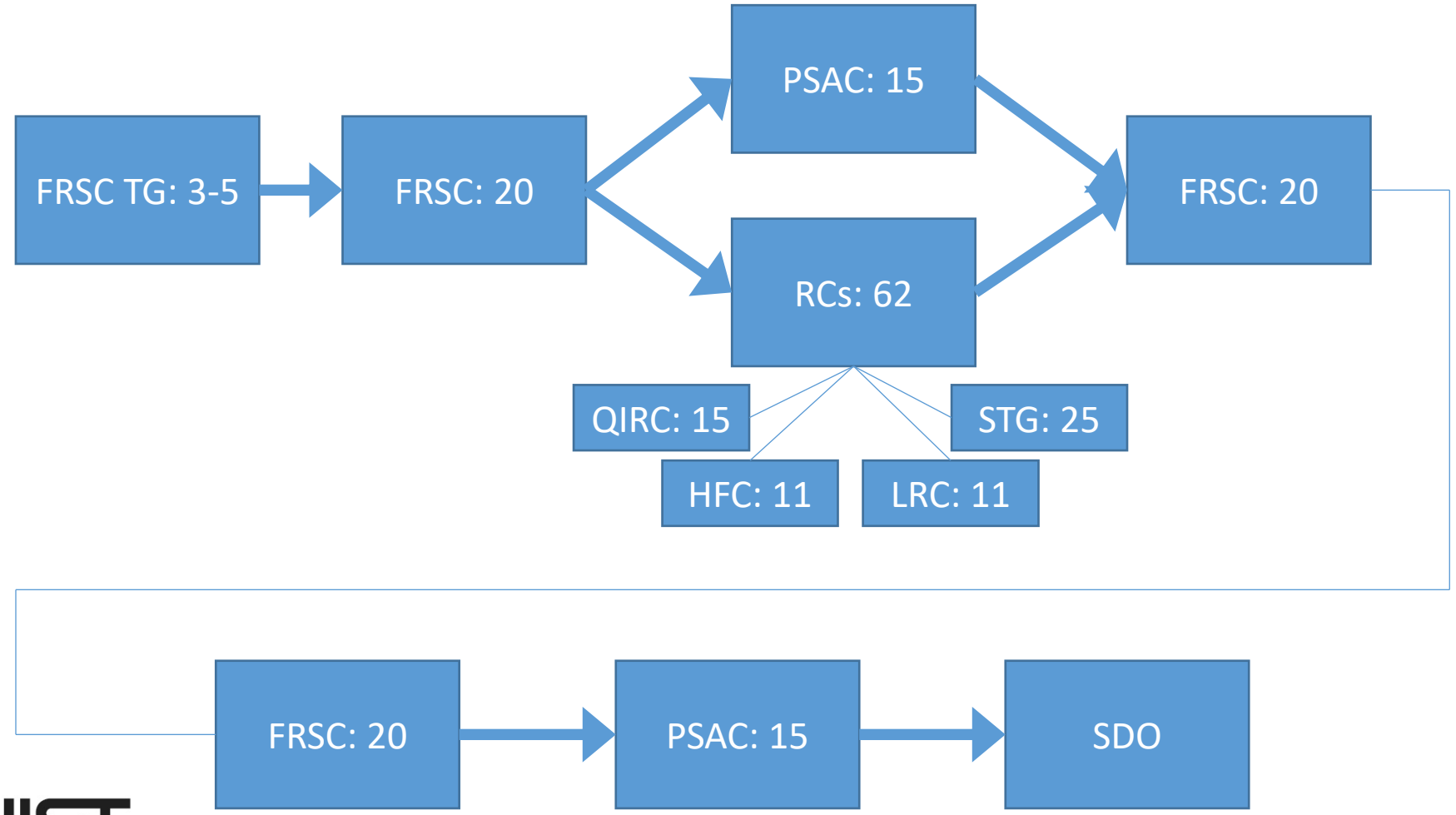
- Research needs publically available online:
  - https://www.nist.gov/topics/forensic-science/osac-research-development-needs

Additional Items of Interest

- ✓ OSAC FRS Response to PCAST
- ✓ OSAC FRS Response to the DoJ Proposed Uniform Language for Testimony and Reports
- ✓ OSAC FRS Response to the DoJ Forensic Science Discipline Reviews
- ✓ Discipline-Specific Baseline Documents (i.e. legacy SWGFAST documents)

- Documents publically available online:
  - https://www.nist.gov/topics/forensic-science/friction-ridge-subcommittee

General Process



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