

SWGDM Update



AFDAA Summer Meeting



Responsibilities

- (1) to recommend revisions, as necessary, to the *Quality Assurance Standards for Forensic DNA Testing Laboratories* and the *Quality Assurance Standards for DNA Databasing Laboratories*;
- (2) to serve as a forum to discuss, share, and evaluate forensic biology methods, protocols, training, and research to enhance forensic biology services; and
- (3) to recommend and conduct research to develop and/or validate forensic biology methods.



Organization

- Chair: **Anthony Onorato**
- Vice Chair: **Phil Kinsey**
- Members are technical leaders, CODIS Administrators, or like scientists from local, state and federal crime laboratories
 - 22 Regular Members
 - 3 year membership term(s)
- Invited Guests may be invited to meetings and have full participatory privileges in Committee business
 - Over 20 routinely Invited Guests
 - 36 total Invited Guests to the January 2012 Meeting



Meetings

- Three SWGDAM Meetings held in 2011
 - January 11-13, 2011
 - July 12-14, 2011
 - November 14, 2011
- Two SWGDAM Meetings to be held in 2012
 - January 17-19, 2012
 - July 10-13, 2012



Summer 2011 Meeting

- Held in Fredericksburg, VA on July 12 – 14, 2011.
- 53 participants with 3 international, 25 domestic federal, and 25 domestic state and local attendees.
- The technical Session focused on contamination considerations in forensic DNA laboratories.



Summer 2011 Meeting

- **Conventional DNA Testing**
 - Dr. Tamyra Moretti of the FBI Laboratory reviewed the FBI's identification and mitigation of a contaminated consumable used in its nuclear DNA casework program.
- **Mitochondrial DNA Testing**
 - Dr. Les McCurdy of the FBI Laboratory reviewed the contamination considerations for a forensic mitochondrial DNA Laboratory.
- **Low Copy Number Testing**
 - Mr. Eugene Lien of the New York City Office of the Chief Medical Examiner reviewed the contamination considerations for a Laboratory performing high sensitivity testing.



Summer 2011 Meeting

- GINA Act
 - Ms. Dawn Herkenham reviewed the U.S. Genetic Information Nondiscrimination Act of 2008.
- ISO Standard Development
 - Mr. Kermit Channell of the Arkansas State Crime Laboratory reviewed ASCLD's participation in the development of an ISO Standard for forensic consumables.
- Subcommittee on Forensic Science
 - Director Ken Melson of the Bureau of Alcohol, Tobacco, Firearms, and Explosives reviewed the progress of the U.S. government Interagency Working Groups.



Public 2011 Meeting

- The SWGDAM Public Meeting was held at the 2011 Annual CODIS Conference on November 14, 2011 in Jacksonville, FL.
- A review of recent SWGDAM business was provided by various SWGDAM representatives: Tony Onorato (General and EDM Committee), Douglas Hares (CODIS Committee), Eric Pokorak (Mass Spectrometry Committee), John Butler (Mixture Interpretation Committee), John Tonkyn (Missing Persons and Mass Disaster Committee), Jodi Dahl (QA Committee), and Clark Jaw (Rapid DNA Committee)



Winter 2012 Meeting

- Held in Fredericksburg, VA on January 10-12, 2012.
- 57 participants with 3 international, 25 domestic federal, and 29 domestic state and local attendees.
- The technical Session focused on forensic haplotype testing.



Winter 2012 Meeting

- mtDNA Profile Frequency Estimation
 - Dr. Susan Cropp of the FBI Laboratory reviewed the calculation of profile frequency estimates for mtDNA sequence haplotypes.
- Y-STR Profile Frequency Estimation
 - Dr. John Butler of the National Institute for Standards and Technology (NIST) and Dr. Jack Ballantyne of the University of Central Florida reviewed the calculation of profile frequency estimates for Y-STR haplotypes.
- Haplotype Frequency Estimation
 - Dr. Bruce Weir of the University of Washington reviewed the estimation of forensic DNA profile frequencies using haplotype counts.



Summer 2012 Meeting

- To be held in the Northern Virginia area during the week of July 9th.
- Expected to be largely a working meeting for the various SWGDAM Committees.
- It is anticipated that one or more updated SWGDAM guidance documents will be ready for discussion and approval.



Recent Business



BUSINESS NOTES

- The SWGDAM membership voted to approve the “*SWGDAM Ethical and Conflict of Interest Statement*” at its July 2011 Regular Meeting (V.C.5.a).
- The SWGDAM membership voted to approve the “*Databasing Quality Assurance Standards (QAS) Audit Document*” at its July 2011 Regular Meeting (V.C.5.a) and the Chair forwarded the recommended revisions to the FBI Director under cover of a letter dated July 20, 2011.
 - The revised “*FBI Quality Assurance Standards Audit for DNA Databasing Laboratories*” was approved by the FBI Director and took effect September 1, 2011.



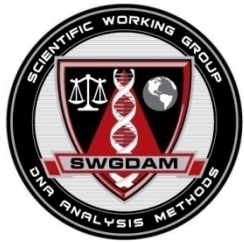
BUSINESS NOTES

- In collaboration with the National Institute of Standards and Technology, SWGDAM launched a website, www.SWGDAM.org.
- After reviewing the current status and utility of the US Y-STR database, the SWGDAM membership voted to prepare and forward a letter to the National Institute of Justice (NIJ) to reaffirm its support for the database and recommend that the funding of this useful tool be continued.
 - The SWGDAM Chair, with the concurrence of the SWGDAM EB, the Chair prepared and forwarded a letter dated March 1, 2012 to NIJ



BUSINESS NOTES

- A SWGDAM representative participated in an ASCLD sponsored roundtable discussion on a potential US standard for DNA consumables held at the American Academy of Forensic Sciences (AAFS) meeting on February 23, 2012.
- The SWGDAM Chair, with the concurrence of the SWGDAM EB, re-empanelled and populated the QA Committee (V.A.1).
- The SWGDAM Chair, with the concurrence of the SWGDAM EB, empanelled and populated a Y-STR Working Group.
- The SWGDAM Chair, with the concurrence of the SWGDAM EB, empanelled and populated a Familial Searching Working Group to independently assess the feasibility of conducting familial searches of the National DNA Index System (NDIS).



Committees



SWGAM COMMITTEES

- CODIS
- Enhanced Detection Methods and Interpretation (EDMI)
- Familial Searching (Working Group)
- Mass Spectrometry/mtDNA
- Missing Persons and Mass Disaster
- Mixture Interpretation
- Rapid DNA
- Quality Assurance (QA)
- Y-STR (Working Group)



CODIS COMMITTEE

- Currently, updating hit counting/disposition guidance to reflect new dispositions in CODIS 7.0
 - Update Hit Counting and disposition examples/scenarios
 - Update Hit Counting Flow charts
- Will handle any CODIS 7.0 issues that arise during deployment



EDMI COMMITTEE

- Revised Validation Guidelines to be applicable for most methods used in DNA analysis.
- Updated the “lingo” to be consistent with the current FBI DNA Quality Assurance Standards
- Made more specific recommendations for different types of validations (extraction, quantitation, amplification test kit, etc.).



FAMILIAL SEARCHING WORKING GROUP

- The Familial Searching Working Group has been tasked to provide guidance regarding the scientific feasibility of conducting familial searching at the national level of the Combined DNA Index System (CODIS). Specific topics that this Working Group will address include:
 - Database size considerations.
 - Relevant statistical considerations for detecting potential candidate matches.
 - Guidance for identifying those candidate matches worthy of further investigation/testing.



MS/mtDNA COMMITTEE

- Continued revision of the 2003 SWGDAM mtDNA sequence interpretation guidelines.
- Reviewed the SWGDAM validation guidelines to provide mtDNA specific recommendations.
- Discussed recommendations for additional mtDNA committee guests/members.



MP-MD COMMITTEE

- Developed and delivered training on Missing Persons processes at the 2010 and 2011 National CODIS Conferences
 - A third training session will be presented at the next National CODIS Conference
- Will develop a written document on the processing of Missing Person cases summarizing the information from these training sessions.



MIXTURE COMMITTEE

- Developing potential future work products to facilitate understanding of SWGDAM guidelines:
 - Training materials to illustrate the principles described in the STR interpretation guidelines
 - Report writing examples
 - Excel programs for mixture deconvolution or statistical calculations
 - Worksheet examples for profile interpretation



R-DNA COMMITTEE

- Developing Quality Assurance Standards (QAS) for R-DNA
- Identifying necessary controls for R-DNA
- Defining developmental validation
 - Define R-DNA (buccal, single source, fully integrated, single instrument)
 - Important: Concordance, reproducibility, precision, mixture detection, contamination
 - Lower priority: sensitivity, inhibitors, species specificity
 - Address alternative single source reference samples (blood stain)
 - How many samples
 - 500 unique
 - 500 additional samples to address (correct genotype, reproducibility, CE metrics)
 - Promoting multi-lab initial validation - no more than 4 labs in a single study (~250 samples per lab)
 - Periodic testing of a sub-set of samples? (n = 10, 50, 200?)



QA COMMITTEE

- 2001 SWGDAM “Training Guidelines”
 - Draft completed
 - Added language for laboratory to define the number of samples/iterations
 - Added language that the numbers of samples/iterations should be different for manual versus automated processes
 - Added key elements for coursework



QA COMMITTEE

- 2001 SWGDAM “Training Guidelines”
 - Updated reference list
 - General (autosomal)
 - Mito
 - YSTRS
 - Mixtures/Population Genetics/Stats
 - Listed foundational references
 - Currently 10 pages



Y-STR WORKING GROUP

- The Y-STR Working Group has been tasked to identify, evaluate, and research issues relating to forensic Y chromosome testing.
 - The Y-STR Working Group will draft a communication on behalf of SWGDAM in support of the continued funding of the US Y-STR Database.
 - The Y-STR Working Group will provide guidance for the identification, categorization, and interpretation of mixed Y-chromosome results and incorporate this guidance into its revision of the January 2009 SWGDAM Y-Chromosome Short Tandem Repeat (Y-STR) Interpretation Guidelines.
 - The Y-STR Working Group will recommend an approach for the calculation of Y-chromosome haplotype frequency estimates and incorporate this guidance into its revision of the January 2009 SWGDAM Y-Chromosome Short Tandem Repeat (Y-STR) Interpretation Guidelines.
 - The Y-STR Working Group will recommend an approach for the incorporation of a theta correction for the calculation of Y-chromosome haplotype frequency estimates and incorporate this guidance into its revision of the January 2009 SWGDAM Y-Chromosome Short Tandem Repeat (Y-STR) Interpretation Guidelines.
 - The Y-STR Working Group will review, and if necessary, recommend other revisions to the January 2009 SWGDAM Y-Chromosome Short Tandem Repeat (Y-STR) Interpretation Guidelines.
 - The Y-STR Working Group will work jointly with the MS/mtDNA Committee to develop analogous recommendations for as many shared haplotype testing considerations as is practicable.