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2008

ON TRAC VOLUME 1 ISSUE 3

INSIDE THIS 2008 CHRISTMAS EDITION

PROTECTING AUSTRALIAN WATERS

Fingerprint technology curbs illegal fishing

FROM THE **CEO**

The year of 2008 will be remembered as an extremely productive one for CrimTrac. The agency has embraced challenges and capitalised on opportunities in areas such as biometrics to help keep police and law enforcement agencies one step ahead of organised crime groups, which are becoming ever more sophisticated and technologically advanced.

CrimTrac has worked extensively on improving the multi-award winning National Police Reference System by refining the content stored on the national database and expanding its production support team to better cater to the operational needs of jurisdictions.

As well as consolidating and upgrading existing systems, CrimTrac is consistently investigating services and programs to provide police and law enforcement agencies with the best information communications technology available. This includes work being done to research the value of national Automated Number Plate Recognition technology. This year, a draft scoping study report was produced and presented to the CrimTrac Board of Management, which is currently considering the potential benefits of such a system.

CrimTrac has also received a mandate from the Board to proceed with a project proposal for a new national capability using the latest in facial recognition technology. A national capability would utilise charge images, taken when charges are laid against a suspect, from every jurisdiction across the country to give police the capacity to use facial recognition to investigate crimes across state borders.

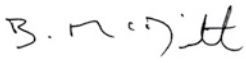
Most notable of this year's achievements was CrimTrac's growth as an agency. 2008 marked the CrimTrac Agency's eighth anniversary, highlighting how far we've come in terms of relevance and importance to law enforcement and our growing criticality to Australia's policing and law enforcement framework.

This was underscored a few months ago when CrimTrac was invited to join the Heads of Commonwealth Operational Law Enforcement Agencies (HOCOLEA) forum.

The new year will no doubt present more opportunities for growth, as we continue to explore new information sharing solutions to assist investigations, crime prevention, detection and reduction.

Until then, I hope you enjoy this special Christmas edition of OnTrac and, as always, look forward to your feedback and contributions.

Have a safe and happy festive season.



Ben McDevitt AM APM
Chief Executive Officer
CrimTrac Agency

SIGNIFICANT CHANGES TO THE **BOARD OF MANAGEMENT**

Following a meeting of state and territory police ministers in November this year, the structure of the CrimTrac Board of Management will change, significantly. During the meeting held in Sydney, police ministers resolved to amend the CrimTrac Inter-Governmental Agreement to expand the membership of the CrimTrac Board of Management to include all Australian police commissioners.

Previously, members of the CrimTrac Board were rotated to give each jurisdiction equal representation, as the Board was constituted by one voting member nominated by the Commonwealth; two voting members appointed by large jurisdictions; two voting members appointed by the small jurisdictions and two non-voting, independent members specialising in information technology and finance.

Under the new arrangement, each jurisdiction will be permanently represented on the Board by its relevant police commissioner. CrimTrac CEO Ben McDevitt, has explained that the changes will mean that each jurisdiction will now be directly involved in the Board's decision making process.

"Over the years, the role of technology in policing, and in society generally, has grown exponentially. So too has the role of CrimTrac as the provider of information sharing solutions for law enforcement. It's for these reasons, and CrimTrac's growing criticality to law enforcement, that police ministers decided that all police commissioners should have a more direct role in the Board's deliberations," Mr McDevitt said.

"I welcome this decision, as I believe it will improve communication among members and jurisdictions and promote a national approach to strategic developments."

As well as a change of structure, the CrimTrac Board's Chair will also be changing after Chief Commissioner of Victoria Police Christine Nixon announced that she would be stepping down from both roles when she retires in March.

Since her appointment as Chair in June 2007, Chief Commissioner Nixon has developed a keen understanding and appreciation for the agency: "I think CrimTrac's a great model for how government at a state and federal level can relate effectively and can have shared resources and shared governance around an entity and I think it's encouraged other areas such as health ▶

EDITOR'S NOTE

OnTrac welcomes contributions from jurisdictions. If you have any suggestions or ideas, please contact the editor – megan.magill@crimtrac.gov.au

Letters to the editor are welcome.

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In keeping with the festive season, please share this magazine with colleagues, alternatively we would be happy to add them to our distribution list. OnTrac will be back in 2009, keeping you informed.
Cheers,
Ed.
ontrac@crimtrac.gov.au

IMAGES COURTESY OF

- NSW Police Media
- Victoria Police Media
- AFMA

and education to actually have a look at the model of CrimTrac and think about how it could be replicated in terms of other areas," Chief Commissioner Nixon said.

"The future for CrimTrac for me is really building on the possibilities of providing technological support for policing across Australia. And instead of each of the states having to think about how they independently might decide on particular sorts of technologies, we should look to see the gains they can make with CrimTrac being the provider. That's the future. It's sort of like a model (we have in Australia) for (criminal) intelligence. You've got your local issues, there's a central level for intelligence and that's through the Australian Crime Commission and I think of CrimTrac with the technology space we're in, can certainly build on providing that sense of operating one system (of policing information) across Australia."

Mr McDevitt has formally thanked Chief Commissioner Nixon for her leadership, commitment and thoughtful contribution to CrimTrac and wishes her all the best in her future endeavours.

The Board of Management has also approved a mandate for CrimTrac to investigate the development of a National Facial Recognition Project. CrimTrac has proposed to provide a national facial recognition capability based on the images within the National Police Reference System (NPRS).

The NPRS allows police across Australia to exchange information, enabling them to access information about people in various jurisdictions. Police use this information to identify whether individuals are a threat to the public, of interest to police or wanted by police. A national facial recognition system would provide all jurisdictions with access to images of a person of interest within the NPRS.

Items to be discussed at future Board of Management meetings include a proposal to integrate the National Firearms Licensing and Registration System (NFLRS) into the National Police Reference System. The NFLRS allows searches to be made using name, firearm licence number, organisation or firearm registration number. The system was implemented in May 2000 by CrimTrac's predecessor, the National Exchange of Policing Information (NEPI).

FACING THE FUTURE: **THE BENEFITS OF A NATIONAL FACIAL RECOGNITION PROJECT**

New technology to help police identify suspects of crime is expected to save hours in the preparation of hardcopy photo boards for witnesses.

On average, police would spend two and a half hours creating photo boards, with the process involving the selection of images from hardcopy photo books, scanning them into a photo database and then cutting and pasting them into a document for printing. In some instances, the process can take as long as eight hours if the suspect's image is unusual.

Earlier this year, CrimTrac received a mandate from the Board of Management to proceed with a project proposal for a national facial recognition capability. Since then, CrimTrac has been liaising with each police jurisdiction to assess their requirements for such a system.

CrimTrac's National Facial Recognition Project Manager, Peter Nolan believes the new technology would enable police to produce hardcopy photo boards in less than thirty minutes, as well as greatly improve the speed and accuracy of identifying ▶

suspects in many crime investigations.

"When police are preparing for witness photo viewings, they won't have to scour through massive manual books over hours at a time to find suitable images. Police can provide a subset of data based on the information witnesses provide in a very short period of time, saving officers hours in the preparation of photo boards," Mr Nolan said.

"It can also greatly assist to quickly identify suspects from crime scene CCTV footage or identikit images".

"Facial recognition works by taking a facial image and running it against an algorithm, which provides a template that is basically a mathematical code representing that image."

"You can then take this mathematical code and compare it against others to find similar images. Then you can produce a list of candidates for instance from a single image that might have a high similarity to the original image."

A national capability would utilise charge images, taken when charges are laid against a suspect, from every jurisdiction across the country.

According to Mr Nolan, this will give police the capacity to use facial recognition to investigate crimes across state borders.

"Even for the few jurisdictions that already have a state-based facial recognition system, it's going to be better to have a national capability because they can now access data from across state borders. But for those jurisdictions that don't have any facial recognition capability, it will be another string to their bow for investigating crime"

The CrimTrac Board of Management will be presented with a full project proposal in mid-2009.

PROTECTING AUSTRALIAN WATERS

FINGERPRINT TECHNOLOGY CURBS ILLEGAL FISHING

Automatic fingerprint scanning devices have been embraced as the latest weapon in the fight against illegal fishing in Australian waters.

Above: Livescan device in use
Below: Apprehended illegal foreign fishers

Prior to the introduction of livescan devices, which capture finger and palm prints electronically and instantaneously, authorities such as the Australian Fisheries Management Authority (AFMA) were dependent on photographs to identify illegal fishing operators.

AFMA plays a key role in protecting the Australian Fishing Zone, where Australia faces increasing pressure from the threat of illegal foreign fishing activity.

One of the Authority's Managers of Foreign Compliance Operations based in Darwin, Cindy Bravos, said there had been an increase in the number of illegal recidivist fishers that had been identified since the introduction of fingerprint technology in November 2006.

"The introduction of fingerprint technology has helped AFMA immensely with the identity management of illegal foreign fishers. Many illegal foreign fishers do not carry identifying documentation and many fishers also utilise multiple identities. Prior to the introduction of the fingerprint technology, not all repeat offenders were able to be identified easily," Ms Bravos said. ▶

The fingerprints of repeat offenders are stored on the National Automated Fingerprint Identification System, which is maintained by CrimTrac. First time offenders are fingerprinted but not charged and allowed to travel home with a warning.

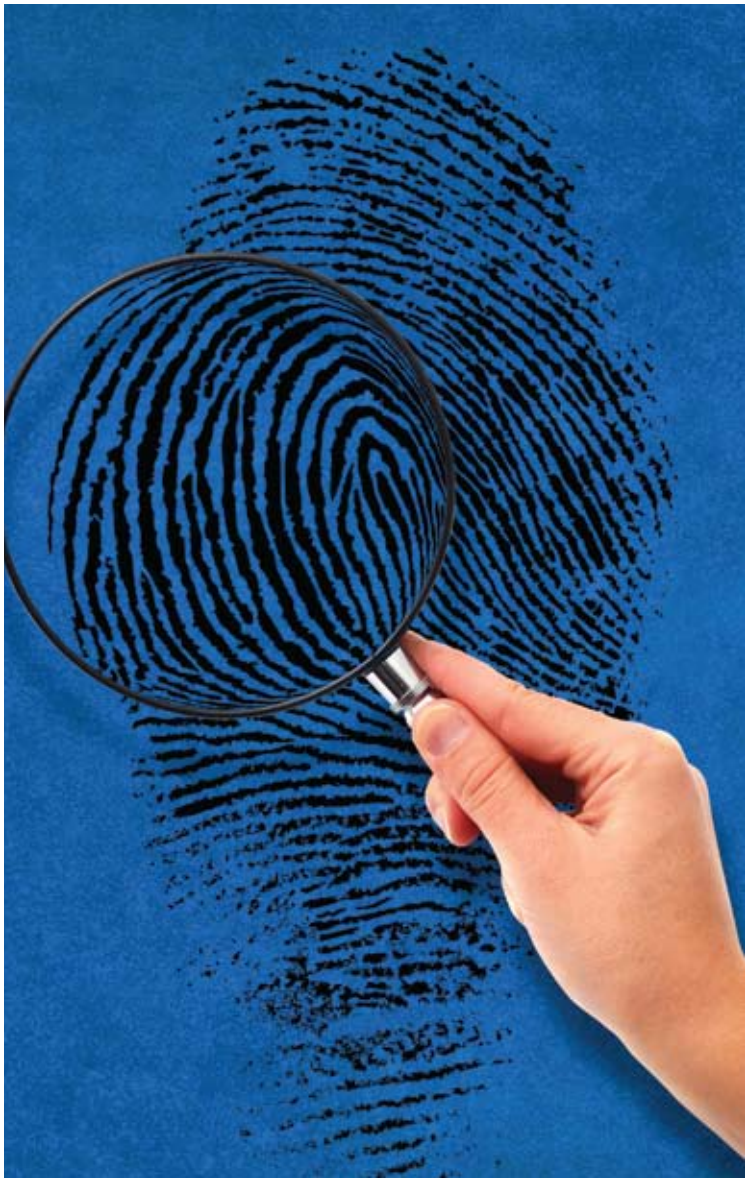
"AFMA has entered into an agreement with CrimTrac whereby once the illegal fisher's identifiers are taken, the information is transmitted to CrimTrac for analysis, reporting and storage using the National Automated Fingerprint Identification System database," Ms Bravos said.

The National Automated Fingerprint Identification System (NAFIS) is a national system of fingerprints captured by law enforcement across Australia. It contains 4.2 million sets of fingerprints, with 90 per cent belonging to criminals and the other 10 per cent provided by civilians such as security guards in New South Wales, gaming and casino operators and police officers.

When authorities detain an illegal fisherman and take their fingerprints, the results are matched against the national database to ascertain whether the fisher is a recidivist offender. This process has been endorsed as an effective deterrent to illegal fishing.

"Identifying repeat offenders and ensuring those offenders are dealt with quickly and appropriately is one of a number of deterrents for prospective illegal foreign fishers. AFMA has a key role in protecting Australia's waters from illegal foreign fishing through investigation and prosecution activity. The fingerprint technology allows AFMA officers to be provided with real time information in relation to the detection of repeat offenders and therefore assists with reducing investigation timeframes," Ms Bravos said.

Since CrimTrac became involved in the identification process of illegal fishers two years ago, the agency has recorded 216 positive identifications of recidivists.



DNA TECHNOLOGY EVOLVES TO HELP IDENTIFY DISASTER VICTIMS

In the laboratory

Since the collapse of the twin towers in New York on September 11, 2001, the United States Government has invested millions in software to assist in the identification of disaster victims.

The software has been designed by the FBI to allow unknown deceased to be identified using the DNA of relatives; a process known as kinship matching.

Kinship matching involves taking the DNA from a body found in the aftermath of a tragedy and matching it against DNA profile information obtained from family members. This process was proven successful at the time of the Bali Bombings in 2002, when missing persons' family members volunteered their DNA information so that matching could be made and Australian victims identified.

CrimTrac's Identity Services Manager, David Lang has arranged to trial the FBI's software package in Australia.

"At the time of September 11, the Americans didn't really have a capability like this. Their kinship matching software was still being developed, so they put a lot of effort into producing a good facility to assist in the identification of disaster victims," Mr Lang said.

"They've since done simulated plane crashes, terrorist attacks and tsunamis with large numbers of unidentified remains of victims to test the software. And the FBI will be releasing this software to the rest of the world in January, so in a few months we hope to install and trial the program here in Australia."

CrimTrac already houses the National Criminal Investigation DNA Database (NCIDD), which contains DNA profiles of human biological samples from all participating jurisdictions. Those DNA profiles are collected from crime scenes, serious offenders, suspects, objects belonging to missing persons and unknown deceased persons.

While the new software would complement NCIDD, there are no plans to integrate the program into NCIDD, instead the FBI's program would be used as a stand-alone system.

"At this stage, it would only be used in the event of a disaster and would only be used with the consent of relatives," NCIDD Business Manager Ian Dempster said.

IN FOCUS

SIMON WALSH
Forensic Scientist, Co-ordination of Criminalistics and Identification Services, AFP

How much do police rely on DNA for solving crime?

Combined with fingerprints, DNA is a principle form of identification that police use to assist with crime scene detections. The main advantage of DNA, compared to other types of evidence, that it is it's found at a variety of crime scenes. From property crime to house burglaries or even car and motorbike theft, there's a good chance DNA is looming or secreted in the alleged area.

DNA is present at most crime scenes, specifically those where there is an exchange of biological material. For example, if someone has been bleeding, or if saliva, blood or hair follicles have been transferred from the offender onto the body, the ground, a gun or a weapon, it is immediately a clue and available for police to collect and examine. Some crime scenes provide police with more information and evidence, such as sexual assaults where there could be an abundance of biological components, ensuring we potentially end up with a 'strong' result.

DNA evidence recovered from crime scenes allows police to potentially generate a DNA profile incorporating traces, characteristics and substances of the evidence. These profiles are shared between policing jurisdictions and intelligence agencies in order to coordinate the next step, or the outcome. This can be very compelling and is a very useful outcome for police. DNA is quite definitive that it gives police some clarity in terms of who is the likely source of a particular item of evidence.

Simon Walsh: Forensic Scientist, Co-odirnation of Criminalistics and Identification Services, AFP

Has DNA really changed the way that investigations are carried out?

DNA evidence has changed dramatically over the past few years and as we approach the future, more and more technical expertise and resources are being allocated to establish and accumulate data to inform the way that investigations are carried out.

Traditionally, forensic science was used to corroborate a version of events that had already been established through police investigation. Forensic cases would come complete with an identified suspect and reference material about the alleged crime scene. Through the use of DNA collection and in particular, the use of DNA databases has allowed police to have been able to implement forensic testing much earlier in the process. An assault by a stranger for example, would allow us to collect traces of forensic DNA evidence which had been recovered from the victim or from the scene. This evidence is then tested before being compared to a database for profiling and intelligence sharing, potentially finding a match from other crimes or people samples from individuals stored on the database.

This system allows police to collate information and use DNA evidence to set up an investigation or to point an investigation in a different direction. Historically, it was possible with other evidence types such as fingerprints to conduct an inquiry in the same manner but the use of DNA has evolved to that point as well.

As we've seen, DNA technology just keeps evolving: where do you see the future of DNA technology?

Police are now able to access additional information from DNA to address the issue of identity, or the source of the sample. The information collated from DNA sampling is overwhelming and the features or characteristics of the person can assist with the 'missing pieces of the puzzle', such as the colour of the person's hair or the colour of the person's eyes.

How could this information be used to further assist investigations?

For DNA testing to be useful, it is necessary to have a comparable substance or results to match it to, such as a reference sample from an accused. The future may involve DNA evidence to be collated and stored in lieu of a potential group of suspects. However, this use of DNA would only occur in the investigative or intelligence gathering context.

An example could involve a hit and run where a witness caught a glance of a late model, silver Toyota sedan. From here , anyone who drives such a vehicle could be a suspect until the investigation is refined or until that piece of information is used as the focus for the investigative team.

The application of forensic science methods means we can sometimes tell what sort of shoes someone was wearing at a scene, or what type of fabric their outer garment was made of. We can sometimes tell things from forensic evidence that helps investigators focus their energy and effort towards a particular set of possibilities or a particular scenario. DNA testing could potentially help to direct the focus of an investigation towards a likely pool of suspects and lead to the correct identification of an offender.

UPGRADING THE **NATIONAL POLICE REFERENCE SYSTEM**

The multi-award winning National Police Reference System (NPRS), designed to help police exchange information about people of interest across state borders, is about to become even more sophisticated.

The system currently contains information about people who could be a threat to the public and includes warnings, warrants, offence history, orders and bail information. It also indicates whether people have an association with a firearm or whether they are on the Australian National Child Offender Register.

In some jurisdictions, police are already expanding their local databases to include details about known associates and organisations of criminals and suspects. This will soon become a requirement of all police jurisdictions, with the information also recorded on the national database.

New information for the NPRS such as firearms and vehicle information, is also being considered. ▶

The National Police Reference System at work (The data in this image is fictional.)

"Police ministers required CrimTrac to undertake a study into extending the existing National Firearms Licence and Registration System so that all information on registered firearms and licence holders is included on the National Police Reference System rather than there just be an indicator," Peter Brown, Manager of Capability Development said.

"We'd like to ensure that when a person is brought up on the National Police Reference System, those details are integrated because if police are going to a residence for some sort of domestic dispute, it's a necessary part of their actions to be aware of legal firearms at a residence. We'll be putting forward recommendations to police ministers next year that firearms information is included."

As well as refining the content stored on NPRS, CrimTrac is expanding its production support team to better cater to the operational needs of jurisdictions.

NPRS Business Manager, Julie Goodwin said that CrimTrac will need to offer a better level of support when the system is rolled out to 50,000 users across the country next year.

"At the moment, we have 18,000 users but already we're finding more incidents are being reported from the field and CrimTrac is being asked to relay that information to police across the country by updating records on the national database," Ms Goodwin said.

"A good example happened on Melbourne Cup Day when the Deputy Commissioner in Western Australia wanted CrimTrac to update a record regarding a person who was a suspect of a violent murder and on the run with a firearm," Peter Brown said.

"The message needed to be broadcast to police nationally; the details were already updated on the Western Australian database but we had to get it out across the borders."

"We were able to respond really quickly to that request but it's going to become more and more a service that we will need to support because incidents occur every night."

CrimTrac is currently recruiting business analysts and production support staff to meet further demand. The new team will provide round-the-clock assistance to jurisdictions by fielding calls and responding to requests for national data changes.

Earlier this year, the NPRS was nominated for an Asia Pacific ICT Award for excellence in e-government. This follows the agency's success in winning three accolades in 2008 for the National Police Reference System for brilliance in ICT; further acknowledgement of CrimTrac as a leader in information communications technology.

IMPROVING INTERNATIONAL RELATIONS - INTERPOL MEETS IN CANBERRA

Last month, the International Criminal Police Organisation (INTERPOL) met in Canberra to discuss advances in automated fingerprint technology.

Australia is one of 20 countries involved in the integrated exchange of fingerprints and part of the INTERPOL Automated Fingerprint Identification System Experts Group.

This year marks the group's 10th year of operation and a decade since the introduction of an international standard for the exchange of fingerprints.

Prior to 1998, INTERPOL received fingerprints from all over the world in paper format, which is a far cry from today's electronic system, according to the Head of the INTERPOL Fingerprint Unit based in Lyon, Mark Branchflower.

"It's just amazing to think that's what we were doing ten years ago, whereas now, the files are coming straight into the Automated Fingerprint Identification System and being searched," Mr Branchflower said.

The Automated Fingerprint Identification System is a digital database of fingerprint impressions which allows police to match prints against a bank of records.

Mr Branchflower credits the system with allowing INTERPOL to identify 80 international criminals a month.

"We're seeing a huge increase because the data is increasing with us and we're keeping it for longer so we're making a lot more identifications with it," Mr Branchflower said. ▶

Meeting in Canberra: participants of the INTERPOL Fingerprint Technology Experts Working Group

"Our data is very useful but what we need to do is get it into other specific databases and the big success I'd say in the last five years is probably in the United States with homeland security. We've actually put the fingerprints into their home security database so if a person now wants to go to America and is fingerprinted for a Visa, well rather than just being searched against the FBI or US most wanted, they are also searched against the INTERPOL data. And we've had cases where we've actually made a lot of hits in by using this data."

The FBI's Section Chief for Biometrics Services, Kim Delgreco, told the gathering of plans to create the next generation in identification based on a biometrics project.

"We've just awarded a contract for the development of a new project to enhance our Automated Fingerprint Identification System: we're going to add a palm print system, a facial recognition system and iris, so it's a big development project," Ms Delgreco said.

Mr Branchflower said that while technology continues to play a huge part in keeping ahead of criminal activity, there are about 80 countries that can't afford the latest fingerprint identification system.

"That's another area that we're trying to improve, especially in terms of Africa; it's a continent with very few Automated Fingerprint Identification Systems, so while we can develop the very best systems, the data can't be used by some countries," Mr Branchflower said.

CrimTrac maintains Australia's National Automated Fingerprint Identification System, which stores fingerprints, palm prints and basic demographic information of convicted criminals, suspects and civilians who have consented to providing their own prints to police. It currently stores 4.2 million fingerprint records.

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