Pet identification: microchips, collars, tags and the Wood Green Animal Shelters' National Pet Register

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ABSTRACT

This paper looks at animal identification systems, particularly tags and microchips. Wood Green Animal Shelters' National Pet Register (NPR) system is discussed and put forward as a method of mandatory registration for animals. The progress of microchipping is viewed against shortcomings of standardisation. The start of microchip acceptance is noted. Future prospects for progress of identification and registration appear satisfactory.

INTRODUCTION

- *Why do we need identification?*
  Because it provides a link between animal and keeper.
- *Who does that benefit?*
  Everybody. Enforcement authorities and owners alike.
- *In what way do they benefit?*
  'Enforcement' is allowed to operate the legislation it is charged with carrying out. With over 50 percent of dogs straying per annum (London School of Economics and Political Science 1989), and the Post Office only being able to prosecute 500 out of 7,000 bite cases occurring to their staff in 1989 in UK, there are clear incentives to improve the responsibility of pet owners.

  Owners benefit in that their lost dogs are better able to be returned to them. 'FRISKIES' pet food company carried out a survey which indicated 68 percent of owners were more concerned about the poor possibility of recovering their lost dog than with any other concern regarding their dogs.

  Society benefits from the reduction of nuisance and the reduction of costs which it bears at present in operating a variety of controls. It should be remembered that a 'do nothing' policy is also expensive.

- *Has it been tried before?*
  UK had a licensing system dating to the time of the Napoleonic wars 200 years ago, which was abandoned recently in 1988.

  Collar and tag identification of dogs has been compulsory in the UK since 1930.

- *Does it work?*
  Only when adequate legislation, enforcement and education are combined.
- *Why should it work now?*
  ...READ ON

IDENTIFICATION SYSTEMS

Tags, discs, tattoos, freeze branding, microchips and 'others'.

1. Freeze branding
This is largely used for horses and involves freezing a branding iron in liquid nitrogen and applying this to the hair of the animal. This is not a practical solution for dog identification, so is discarded.

2. 'Others'

May include DNA analysis, nose prints and 'fringe' type processes which are either unproven, difficult to apply, unreliable or inadequately developed.

3. Tattoos

Have been operational for some decades on a large scale basis. The UK GSD organisation maintains an ear tattoo register .

The National Dog Registry maintains a similar all breed register in the United States of America (NDR, PO Box 116, Woodstock, NY 12498).

The American Kennel Club (AKC) maintains a thoroughbred pet tattoo record (but is open only on weekdays!).

Arguments in favour of tattooing:

- It doesn't hurt;
- Does not need anaesthetic;
- It's quick;
- It's permanent;
- It lasts a lifetime;
- NDR claim to have 'overseen' 4 million tattoos without 'to our knowledge. ..even a simple skin infection'.

Arguments against tattooing:

- Numbers wear off;
- Hair grows over site;
- It hurts;
- It may require anaesthetic;
- It may not be easy to read;
- Sites of application vary (ear, thigh);
- No standardisation on size, letter formation or format of application;
- Tattoo line expands with age;
- Difficult for finder to know who to phone;
- May be deliberately erased to avoid tracing on abandonment.

4. Tags, discs and studs

These come in an almost inexhaustible supply of MATERIALS -stainless steel, plastic, brass, gold, mixed alloys, aluminium, nylon, nite-lite reflective material, polyurethane.

USES - dog and cat tags, industrial, livestock, poultry, conservation - birds, books, cables, cages, etc, and plant labels.

COLOURS - red, blue, yellow, green, orange, gold, purple, silver.

SHAPES - square, circle, oblong, 'state' shaped, oval, bell, heart, octagonal, shield, star, horseshoe ... whatever!

FIXINGS - tongued, strap, wire, crimped ear seals, press together, earring tag, plastic sealed.

MESSAGES -written words, numbers, laser etched bar codes, 'smart' microchip cards, holograms.

BUT SO WHAT? What are the advantages?

- Visibility;
- Clearly legible;
- Shapes may indicate STATE of issue;
- Colours may be TIME related (6/12, annual, etc);
- Codes may indicate vaccination or microchip status;
- Will provide instructions to finder including phone number which may be 'tollfree' (incentive to ACT).

Disadvantages:

- May be chewed;
- Numbers may become erased with time;
- May come off/be removed;
- No use if no collar worn;
- May become damaged - particularly part of telephone number.

5. Microchips

There is a wide variety of microchips, in different sizes, which operate at different radio frequencies. Some chips that come to mind include:

- Trovan: AEG;
- Tirius: Texas Instruments;
- Diester;
- Destron;
- Auto ID;
- Needap;
- Avid.

There is a basic similarity about microchips with a variety of individual sophistications. For example, Destron is a 48 bit chip and Avid a 96 bit chip. Some are coated and some are not.

A DISCUSSION ON MICROCHIPS

There is an ISO Standard (ISO 1994) - but this was prepared by Tech Comm ISO/TC 23 (Tractors and Machinery for Agriculture and Forestry), Sub-committee SC19 Agricultural electronics and is basically oriented towards farm animals. Being a code structure document, it is aimed at allocating bit spaces to code fields, for example Bit No I. Information: Flag for animal (I) Non-animal (0). This may be superb for farm animals, I don't know, but it clearly hasn't understood the 'small animal' input and did not consult their representatives.

The UK Advisory Panel on Companion Animal Identification has made representation to BSI that there ought to be only one standard.

Within SC19 is a Working Group (WG3) and which has now expressed an interest in the companion animal scenario by resolving to set up a 'task force'.

In the interim, under the guiding hand of the Federation of European Companion Animal Veterinary Associations (FEC AV A) the two major UK players, Destron and Avid, have reached agreement on a 'Eurochip' standard, so that 'compatibility' is now in evidence. Either reader will read either chip.

Following the world evidence of non-standardisation, this is regarded as consequential progress. It is hoped that this cooperative approach will now spread to other countries so that the inherent difficulties attaching to these systems are removed.

Many people have sat on the fence up to this point, not knowing which system will 'win', If they work together everybody wins, including, most importantly, animal welfare interests.

The microchip system (Avid system as an example):

1) The 'chip' is known as a 'transponder' and consists of:

- Ferrite rod;
- Antenna for receiving/sending signals;
- Integrated circuit/microchip, with its code etched into a circuit incorporating transmitter and voltage regulator circuits;
- Bio compatible glass capsule. The capsule has a Parylene coating;
- The chip is 'passive' - only reacts to signal from reader, and is a 96 bit integrated circuit;
- Size - 14mm x 2mm;
- Programmed with 9 digit number which is read using handheld reader (transmitter/receiver).

2) The gun (implanter) is a small handheld plastic pistol grip device. The implanter is specially designed to enable implanting with maximum control and minimum effort. It is designed in a particularly 'user friendly' style. It offers easy acceptance and expulsion of the sterile needle and chip via the bevel front, which is specifically designed to reduce 'stick' accidents.

The undulating interface with the rugged needle holder ensures smooth action without jamming and reduces the need for the application of unnecessary force, making it safer to use.

The pistol grip allows easy implantation with a steady hand, unhindered by the need for more difficult displays of manual dexterity such as may be required when using a syringe.

The proximity of the unit to the place of input reduces the possible effects of movement and its related input error .

The plunger retains sterility during use because of the separator provided with the needle.

The 'gun' or implanter components are made of plastic and rustproof metal and are therefore suitable for sterilisation using heat, without causing damage.

Once the needle is attached and implantation procedure followed, the 'trigger' or pistol grip of the gun activates a plunger which pushes the chip through the hollowed needle into position in the animal.
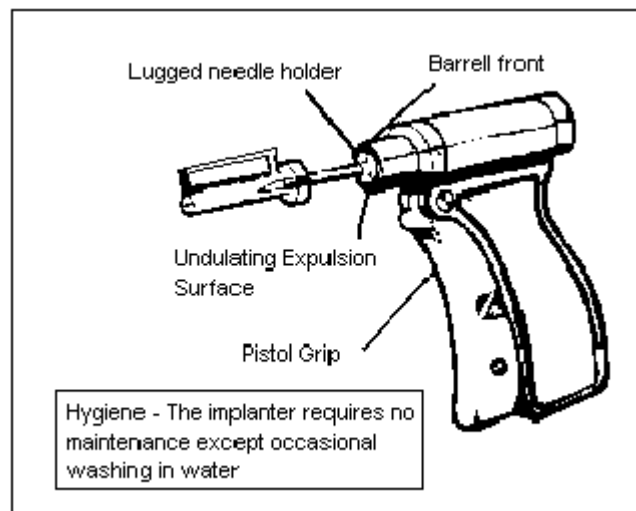
3) The needle is designed to help clean entry: it is chamfered and contains a chip and separator.

The 'flag' style projection of the holder allows for 'sided' insertion of the needle according to the 'handedness' of the user. That is, the flag position will allow visible siting of the chip by its location in an 'upward' or 'downward' placing which corresponds to the person doing the implantation being either left handed or right handed.
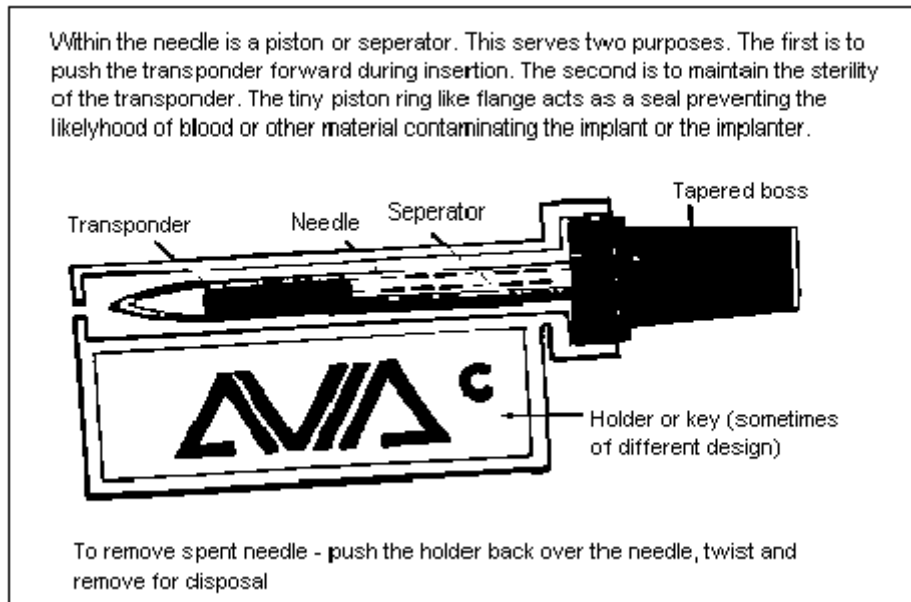
The needle is specifically designed to ensure tissue is entered cleanly and that only limited

Suction occurs on removal. Both these actions increase the 'cleanliness' of the operation in that limited surface skin damage occurs and the implant remains in position during needle withdrawal.

The needle is disposable after one operation, preventing re-use, consequent blunting and removing risks from cross-contamination.

After implantation the plastic needle holder is replaced over the needle and used as a key to unlock the needle from the end of the gun, providing protection to the user against accidental 'sticking' while removing the needle. As a 'sharp', the Clinical Waste Regulations apply and this facility allows for safe disposal of the needle inside the protective cover.

The whole device comes in a sterile sealed pack and is used once only. The separator prevents body fluid contamination between chip and plunger.

Within the needle is a piston or seperator. This serves two purposes. The first is to push the transponder forward during insertion. The second is to maintain the sterility of the transponder. The tiny piston ring like flange acts as a seal preventing the likelyhood of blood or other material contaminating the implant or the implanter.

Transponder   Needle   Seperator   Tapered boss

Holder or key (sometimes of different design)

To remove spent needle - push the holder back over the needle, twist and remove for disposal

4) The Avid reader is a handheld, portable battery operated device with an attractive but rugged lightweight functional design and a weight of 505 grams.

It has an LCD display which indicates operational functions, battery conditions and chip number readout.

An RS232 interface port is available allowing computer access through a standard cable interface.

The power switch on top of the reader turns the unit ON and OFF. Press the power switch firmly once and the unit will turn ON. The LCD display will announce' A VID ID READY' and the buzzer will produce a tone.

The power switch must be ON for all reader functions used. Press the power switch again to turn OFF .

Display will go blank and no additional tone will sound.
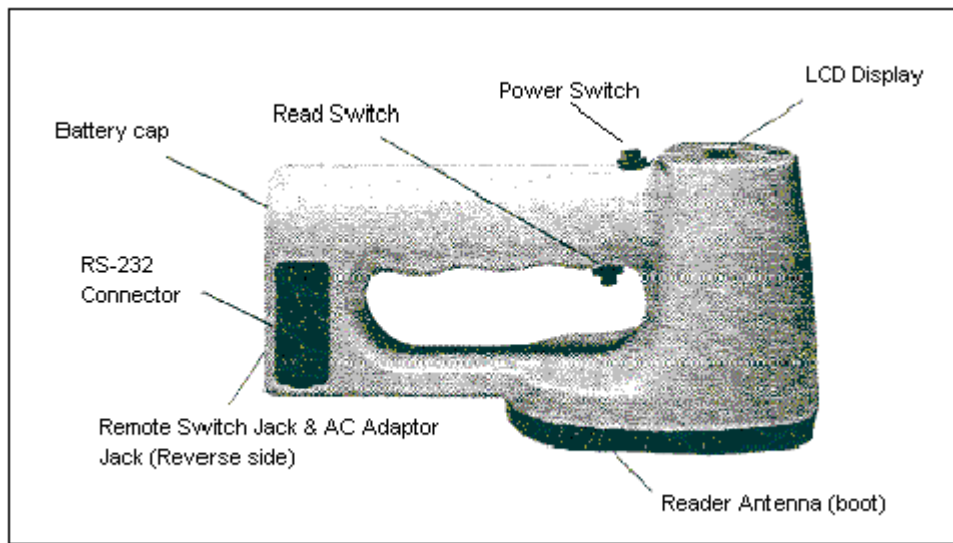
A new SMALLER unit - comparable in size to a 'remote control' hand held device for TV/video operation - came onto the market earlier this year.

5) The 'operation' or implant procedure:

i. Scan animal to check for existing chip;
ii. Read new chip before implant;
iii. Swab intended implantation area with sterilising solution;
iv. Load gun with needle;
v. Implant chip subcutaneously along the dorsal midline between the scapulae.

NATIONAL PET REGISTER

Wood Green Animal Shelters (WGAS) have maintained a register for over 20 years. It was originally a manual card index system for recording and a brass-like disc for issuing to clients which contained the phone number of the register on one side and the unique reference number of the animal on the other.

In 1988 we moved up a stage to computer use. We installed an IBM AS400 series computer with 'dumb terminal' screens. The computer has the capacity to store 80 million registrations and has an easily expanded 'bolt on' facility should the need arise. There are some 250,000 registrations on computer at present. As it stands, anybody who wishes may enter onto the register for just £8 for the life of the animal. This includes the first year's third party liability insurance with a cover up to £2 million.

Should people require microchipping as well, there is an additional charge according to who carries out the exercise. It would cost £25 at the Shelters for computer registration, one year's insurance, the microchip, and a coloured, clearly marked TAGMASTER plastic tag bearing the unique number and phone number.

Like any self-respecting recovery service, we operate 24 hours a day, 365 days per year. Most dogs are lost in summer evenings, after 5.00pm. All animals leaving the Shelters are now microchipped.

LEGISLATION

In England the Environmental Protection Act 1990 places a duty on local councils to seize and detain stray dogs.

The Control of Dogs Order 1992 (SI 901) replaces the 1930 Order, but still requires all dogs 'in a place of public resort' to 'wear a collar with the name and address of the owner inscribed on the collar or on a plate or badge attached to it'.

The Environmental Protection (Stray Dogs) Regulations 92 (SI 288) allows councils to charge a fixed fee of £25 (additional to other expenses) to be paid by a person claiming to be the owner of a seized dog.

In keeping a register of seized dogs the council officer is obliged to keep: 'any information which is recorded on a tag or collar worn by or WHICH IS OTHERWISE CARRIED BY, the dog' (my capitals).

This last point is one which we interpret to mean that councils have a duty to look for microchips in found animals.

The system

1. As it affects local authorities: In complying with the above legislation local authorities are obliged to incur a range of expenditures.

One of our advertising leaflets to councils lists 25 reasons why dogs represent a cost to them. These include:

- Byelaw enforcement;
- Provision of dog warden;
- Vehicle for warden;
- Kennelling;
- Disposal and construction costs;
- Provision of faecal waste bins;
- Collection and disposal of waste;
- Provision of signs;
- Costs of straying dogs - injuries, bites, fouling, unwanted litters;
- Administration and court costs.

The bonus to governing bodies of having registration means that pets are returned quickly to their owners. The consequent savings of capital and revenue investment flow from this prompt action.

2. As it affects the public: Lost dogs are returned more quickly. Accidents are reduced. Centralised registration means that people involved only have to make one call. Movements, via holiday or relocation or migration, are still covered by the register.

There are countless stories involving the register:

1. Dog found before it was lost. When people contacted, thought their pet was in the next room!
2. Man's life saved. He was a diabetic. Collapsed on street with no identification. Police contacted register via dog tag. Able to identify man and his disease; his life was saved as a consequence.
3. People, for example, a vet and a policeman go on holiday and forget to advise register. Dogs lost and relocated through contact number. (Some people say where they have gone on holiday, rather than the dog).
4. One person with phone to each ear at register talking to loser and finder at same time.

3. As it operates at WGAS: Each applicant completes details of keeper and pet on enrolment form.

KEEPER: name, address, home and work telephone numbers, main area police station, holiday dates, pet's temporary address, second contact number.

PET: Name, breed, breeder's name, colours, sex, neuter/spay condition, distinguishing marks, other identification numbers, name of veterinary surgeon, medication (if any).

OFFICE: Information computerised, addresses validated, including postcodes, tag and literature returned to keeper, tag reference number recorded on computer.

COMPUTER INFORMATION : As a combination of registers it has become quite a complex overall system.

There is a menu of screens available according to information required.

For example, stray and unwanted dogs are recorded. Where the latter are brought in, information on status of animal is recorded. (Does he like children? Does he travel well? Diet, etc). (See Appendix 1 and 2 for sample screens).

We also have a LOST & FOUND system undergoing development and operational, but not yet nationally advertised. (See Appendix 3 and 4 for sample screens).

REPORT OF FOUND DOG: A finder will ring the National Pet Register (NPR) and provide ID number from collar. This has the advantage that all the public are interested in returning lost dogs, and their effort is simplified because the nearest telephone is as far as they have to travel.

By law there is a requirement for finders to return lost dogs to either the keeper, the police or the local authority .As the first is unknown and the other two often either closed or many miles away, it is far simpler to do something positive using NPR.

With over 50 percent of the population being pet owners, there is a general appreciation of the need to respond.

Upon receipt of the call, the computer is checked, address found and keeper contacted, usually without delay. Obviously there are times when the owner may be out watching England beat Australia at cricket or, on even rarer occasions, out late celebrating a victory. In these circumstances there may be a need for many phone calls tracking down whereabouts using contacts.

It is this 'welfare of animals' input that is so important to a successful system. Simply having computers and recorded messages does not work. You want people on the end of a phone.

There are rare occasions when 'other' arrangements are needed. For example, asking the finder to hold the dog temporarily; trying to call out a dog warden (some are on 24 hour call, usually for emergencies); asking the finder to take the dog to the police; ringing the police to visit ex-directory (and unreported to us!) telephone numbers; ringing other known contacts in the area (other welfare societies, possibly even a nearby NPR member).

COMPULSORY NATIONAL REGISTRATION

With the STRAY DOGS REGS requiring a search for 'other' identification (chips) and the BALAI Directive (1992) providing an opportunity for traded dogs to be imported without going through quarantine, the European Union (Commission 1994) has adopted a decision that an electronic ID system should be used, and that it shall consist of an implantable transponder and must be one of those used in the dogs and cats of the Member States.

Given compatibility, proper marketing, proven operational success and central registration, it will become clear that registration works nationally.

The Labour and Liberal Democrat parties have included REGISTRATION in their manifestos. Surveys (Joint JACOPIS/CIEH 1991; Environmental Health/ERN 1994) always show great public support for registration. Only the Government is unresponsive.

Progress to date:

Ineffective:

Legislation;
Enforcement;
Cost controls.

Government has:

Ignored and added to existing costs;
Provided limited solutions;
Ignored sound advice and clear evidence.

REGISTRATION is the KEY to effective control and should be introduced as a mandatory requirement. NPR has demonstrated that the system works, is not bureaucratic and is cost effective.

FUTURE: the final push to most governments would be to provide an effective microchip system. To this end there needs to be a standard microchip for companion animals:

A single world-wide standard (a range of manufacturers would still be feasible);
A unique and tamper proof number;
Database for records (a range of communicating databases will do, if one central registry per country is unachievable);
Safe implantation;
Standard must allow improvements; Prices must reduce;
Multi-reader 'compatibility' should not add to practical problems, particularly with reader replacement.

CONCLUSION

Animal identification is available in many forms. Visible ID will always be required, however sophisticated alternative systems may become.

Microchips are slowly gaining acceptability in the market place. Lack of reader availability and compatibility between systems has hindered progress to date.

Databases must be reliable financially. Intercommunication must be a requirement of any approved system.

Reproducibility of electronic read out data should be closely examined to prevent any lack of credibility in chip use.

Wood Green Animal Shelters' NPR is a good model of a voluntary registration system which has worked for some years.

ISO standards may assist the concept to progress.

REGISTRATION should be a mandatory requirement to animal welfare interests, to allow dog keepers to have their dogs returned, and for the Government to help with sensible animal controls.

Appendix 1

IDO102 F3 IDENTIFY ENQUIRY - ALL WGAS REGISTERS SELECTION

Enter IDENTIFICATION

Enter NP ED PA etc as applicable)
Identification may be any one of -)

National Pet Number   (NPxxxxxxxxxxx)
Exempted Dog Number   (EDxxxxxxxxxx)
Pet Alert Number   (PAxxxxxxxxx)
WGAS Identification   (**xxxxxxxx)   ** HD KD HC etc
Transponder Number   (xxxxxxxxxxx)
Tattoo Number   (xxxxxxxxxxx)
Any other Identification   (xxxxxxxxxxx)

Please enter Right Justified ie NO Blanks at the Right Hand Side

F3 = Exit

Appendix 2

ID0102 F4   IDENTIFY ENQUIRY - ALL WGAS REGISTERS DETAILS - KEEPER/ANIMAL

Source: B IDENTICHIP
Refer to Manual Record Immediately Y
Microfilm No.

F3 = Exit   Press ENTER to continue

Appendix 3

LF0115   LOST & FOUND DISPLAY FOUND ANIMAL DETAIL
                                    DISPLAY FINDER DETAILS
Surname: From: Local Authority   Postcode: SG8 8SX
Title: Mr   After title:
Forename:
Address 1:   (Handler)
Address 2:
Address 3:   DO NOT CHANGE
County:
Telephone: (Home)
                                (Work)
Local Authority Code (L, P, R): P (Number: 1816)
 Name: Royston Police Station
Address 1:   Priory Lane
Address 2:   Royston
Address 3:   Hertfordshire
Postcode: SG8 9DU   Telephone: 0438 321323
F3 = Exit   Press ENTER for more Details

Appendix 4

LF0115   LOST & FOUND DISPLAY FOUND ANIMAL DETAILS
                                    DISPLAY ANIMAL DETAILS
Animal Found Number: 5983
WGAS Number: HDD96087
NPR Number:
Details entered by - Initials:
Animal class: D   Dog
Main breed: 188 Lurcher

X breed:
Animal's name: Patch
Sex: M
Neutered: ?
Age (Y - up to 1 yr, M - 1 to 10 yrs, E 10+)   M
Colour: 37   White/Tan
F3 = Exit   F12 = Return
Press ENTER for more Details

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UAM 94 index