

# Making iwdb.org

Dr. Maura Lyons  
Per Arne Flatberg



We are standing here on behalf of a large group of people. The trustees of the site, Pernille, Edita, Jean Timmins and ourselves, the core working group who has worked tirelessly to check and add data to the world's biggest irish wolfhound pedigree database, and not least those of you who have contributed data about your dogs. Thank you!

We started work on iwdb.org almost two years ago. Our goal was to create a free and open database of irish wolfhounds. Make it as complete as possible, and create great tools for breed bodies and researchers alike

## What is IWDB?

- Free and open pedigree database of 133,000+ irish wolfhounds
- Aimed at any breed enthusiast
- Goal: Detailing the pedigrees of all irish wolfhounds that ever lived
- Longevity database
- Research tool
- A tool for breed preservation and development
- A tool for the future



So what is iwdb.org? One of the things that have surprised us a bit is how different people may use it. We wanted to create a tool for any breed enthusiast, not just breeders. And we wanted to do whatever we could to make sure as many irish wolfhounds as possible is in the database. We believe every irish wolfhound is important, even though they were never bred from.

We also wanted to create a longevity database, hopefully in due time giving answers to the important questions of how long does irish wolfhounds live, and what do they die from?

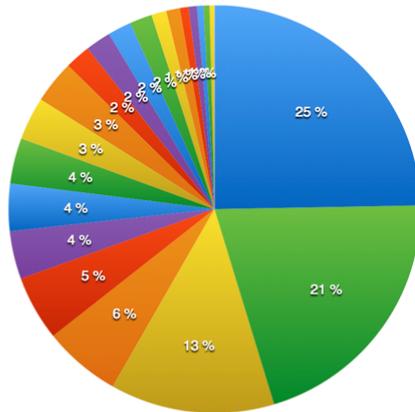
We also wanted to create a tool which is great for research and a tool for preservation and development of our breed.

Now, a lot of these initiatives have come and gone. None of our efforts will have been of any use if it lasts for a year or two. We really want this to be in the backbone of our breed's

history 50, 100 years from now. which is why we created an ownership-structure of trustees.

## Where are they from?

• Complete data through 2015 from



- UK
- Norway
- Sweden
- Australia
- New Zealand
- Finland
- Denmark
- Czech Republic



So, how many of you have used iwdb.org yet? OK. Hopefully, you'll all be familiar with the basic tools, and what pedigree databases generally consists of, but let's have a really quick look anyway. There's really quite a lot buried down here, and we'll just briefly touch on the main features.

Let's start by drilling down the 133,500 something dogs in the database. For countries like the United Kingdom, Netherlands, Sweden, The Czech republic, Finland, Norway, Australia and New Zealand we are complete as far as digital kennel club records go. For others, like Germany, we are working through yearboks to be complete, and are more or less complete for the time yearbooks have been published. We are weak on some countries, but are getting contributions from a lot of you and getting there.

The main search interface is quite easy to use. Just search for the dog you want to research and get going. If you'd

rather see what's been going on in a particular country or kennel, just head over to advanced search and search for what you'd like to see.

You will see that the main interface has several parts. At the top, you'll find vital information on the dog you are researching and his parents. Below you will find the main pedigree with important information available at a glance there. Of special interest is the longevity information and the coloured boxes which indicate a dog that appears more than once in the pedigree. By default a 5 generation pedigree is shown. If you're using a mobile phone, you will see a 3 generation pedigree. You can change what is shown on top of the screen, showing anything between 3 and 10 generations.

If we move on, we find the siblings part detailing full and half siblings of the dog in question. We then have a listing of offspring, also showing the dog's influence on the breed, taking into account all dogs which has this dog in its pedigree.

One of the more interesting parts in my opinion is the ancestors-part. We will talk more about that in a bit, but you will see complete data on the breeding, including repeat ancestors and their influence on your dogs, the complete sire and damline, data on inbreeding and ancestor loss.

The reverse pedigree details the data found in offspring, showing you the breeding based on this dog across generations.

Finally on the data part you will see the vertical pedigree, which also lists siblings of the dogs in the research-dog's pedigree.

I just want to show you a few nifty features in addition to what we've looked at.

On the pedigree-page, there's a printer icon. using that you'll get a printout or the ability to create a PDF of all these data. If you go to

favourites, you'll see your browsing history and you'll be able to favourite dogs by clicking the orange star. There's also nice features for sharing a pedigree with others and embedding a pedigree on your webpage.

So, why does all this matter, Maura?

## Breed preservation and development

- Genetic diversity and the irish wolfhound
- History of genetic bottlenecks and decreasing depth of gene pool
- Inbreeding and ancestor loss
- What's good for the breed is good for the breeder
- The past is the past, let's talk about the future



It matters because if we are to be responsible custodians of our breed we need to be able to study and analyse the pedigrees and associated information of the dogs that we might be thinking of breeding from, and know about their relationship within the entire population. We were very aware that as a breed we desperately needed a database that was freely available to everyone who wished to use it. This includes breeders, exhibitors, owners and potential owners.

Recently it has been shown that Irish Wolfhounds all over the world are very genetically similar, this is probably due to the comparatively small number of founders used during the breed revival during the 1800's, and also to the fact that as a breed there has been a history of global cooperation between breeders, which continues today. We also know that there has been a number of genetic bottlenecks, where a great number of animals, and consequently genetic diversity, have been lost from the genepool.

Many identified genetic diseases within dogs are caused by simple recessive gene mutations, meaning one gene locus is involved and that the disease-causing mutation must have been passed down from both parents. The likely source of the mutation is thought to be a shared ancestor so the easiest way to reduce the risk of producing puppies which suffer from simple recessive genetic diseases is to ensure the Col of potential matings is as low as you can make it. IWDB can give a calculation of Col over a 10 generation pedigree for any trial mating (assuming the pedigree for both parents is complete). But this is only half the story - IWDB also gives a reading for Ancestor Loss. Col is a measure of inbreeding - ie how many ancestors appear on both sides of a pedigree. Ancestor Loss is a measure of genetic diversity, the more unique ancestors a dog has, the more its genome can be considered as heterogenous. Both these measurements should be taken into consideration, along with all the other information you need to make an informed breeding choice, when planning a mating.

According to the KC's recent population statistics report wolfhounds are in a fairly healthy state as a closed registry dog breed, but they have only taken account of the dogs within their own system. And I think we need to be very careful to keep the good state we are in and if we can, we should be actively working to improve it. If we keep the breed healthy then it follows that our pups will be healthier and longer-lived, and that is what we all want, I think. In order to achieve the best possible results we must all be helpful, open and honest with each other, we cannot change what has happened in the past, but we can do our very best in the future.

There is a lot of information around about population genetics and how to use population analyses and statistics to find out information about creating breeding strategies - effective population size etc etc with IWDB we hope that we have now

provided the tools for everyone to create their own breeding strategies based on knowledge and fact, rather than gossip and whispers.

## Using IWDB for research

- Multiple levels of researchers
- Breeders
- Breed bodies
- Veterinary sciences
- Genetic sciences
- Tools for all of them



We believe a key to our breed's future is good research, and the ability to do research from different perspectives. So when we created iwdb.org we had research at the front of our mind.

We wanted to make research possible and easy for breeders, breed bodies, scientists and those just interested in the breed.

## Breeders' research tools

- Trial matings
- Ancestor listings
- Identifying influential animals



Let's start by talking about breeders. A lot of you breed. What tools do you need for your breeding? We've created a trial mating system which we believe makes it really easy to see what's happening if you try a certain breeding. You will get all the features you get from an ordinary pedigree, including calculations on inbreeding and ancestor loss. You will also get the possibility to use trial matings in further trial matings in order to see what might happen in a few generations time. All trial matings are private and only accessible to you.

When you do a trial mating, we think it's important to see which animals are influential in that particular breeding. By using tools for common ancestors, sire and damlines and listing sires and dams, you'll get a rather complete overview of animals present in that pedigree. As mentioned earlier, it will also help you minimize the risk of recessive mutations, by keeping the inbreeding coefficient low. We also want to

keep an eye on the ancestor loss and keep the number of lost ancestors as low as possible.

## Breed bodies

- Detailing breeding in your country or area
- Solid foundation for breeding strategies



Moving on to breed bodies, meaning Irish wolfhound clubs in general. In some countries, the kennel clubs enforce breeding strategies done by the breed clubs. For those who don't have that enforced on them, it's really quite brilliant. A breeding strategy forces you to assess the current state of the breed and helps the breed club to see what needs to be worked on.

The problem with breeding strategies is that they used to mean a lot of hard work, especially gathering all the data needed. When we did our last breeding strategy in Norway a couple of years back, we spent close to six months gathering data on the breed, organizing it in a proper way and doing all the calculations. We will put an english version of that breeding strategy on our facebook-page for all of you to have a look at.

So how does iwdb.org fit into all of this? Well, for a lot of

you, all the data you really need for a breeding strategy is in iwdb.org already. We have complete records for a lot of countries, and those of you who are in those countries may benefit directly from this.

So let's have a look at the breed body research tool.

## Scientists

- Separate APIs allows them to attach “our” data to their research data



So how about the scientists? We thought long and hard on how we could help them make research into irish wolfhounds easier and more meaningful. A lot of research into diseases aims to track down inheritance, which means the data in iwdb.org is perfect for them. However, we don't want them to spend time researching pedigrees when they can instead research diseases or genetics.

So we have created an application programming interface for researchers, making it incredibly easy for them to get the data they want. Now, for most of us, the concept of application programming interfaces is rather foreign, so I thought I'd just show off how I've used one of the API's in iwdb to do some basic research into hip- and elbow dysplasia. I've been using the data from the american orthopedic foundation for animals as well as data from the norwegian kennel club, both of which are freely available. I've imported it into a database program called filemaker and

then linked that to the iwdb-data through an open database connectivity layer...

Show off one sample: A Filemaker database of OFFA-screeningresults linking to iwdb...

Remember this is just a sample. We believe there's lots of research opportunities that will open up in the future once scientists get an idea about how this can be used.

## **We need your help**

- Verifying your data
- Adding missing info
- Adding new litters
- Adding photos and videos
- Financial support



IWDB is an ongoing project and we have done all the hard work already. This should be a valuable resource long into the future and in order to keep the database relevant into the future we need your help.

Please go in and check the data on your own dogs, if we have something incorrect or a piece of data is missing you can let us know using the 'Report a Problem' form on the pedigree page. This is really important, and as you have new litters please check that their details remain correct, please update us with name changes, and add your titles as you get them.

To get the most out of IWDB it is best to register, once registered (which is free and easy) there are a couple of extra options available to you. One of these is the 'correct/append to this pedigree' option. You can correct errors here, add titles, and add date and cause of death. We really want this info - we think it is super important for breeders researching future matings, and for breed bodies creating breeding

strategies to know what wolfhounds are dying from and if there are any trends developing according to geographic location or new emerging diseases. We hope in the future to be able to record other health information here also.

There is an Add Litter button where you can enter the sire and dam info, the date and country of birth then choose how many puppies to add information for, this then allows you to enter a name and details for each pup in the litter.

The 'Add Mediafiles' button allows you to add photos and also videos of your lovely hound. These will appear on the pedigree page when people search for your dog. You can also add pdf files, these might include health reports or other relevant data.

Most of the work involved in keeping IWDB running is voluntary but there are some costs involved with maintaining the website, hosting etc. and also with gaining access to data from kennel clubs around the world, some charge a membership fee, others charge for the most recent publication of registry data. If you use IWDB and think it is a worthwhile project, and more importantly if you wish it to still be available into the future then please consider using the Donate option found at the top right of the screen. We don't need a lot but regular contributions of a few quid would be appreciated.

## A glimpse into the future of iwdb.org...

- Finding dogs not related to a certain dog
- Founders present in pedigree
- Privately annotated pedigrees
- Screening results
- Development of causes of death
- More research tools
- Historical influence of dogs on the breed
- Educational material



As Maura mentioned, this is an ongoing project. We think it's really important to get the data right, and keep being updated.

But we also have a lot of features we want to add to the database in the future. Some of these are initiated by us in the core-group, others are great ideas from you. By the way, keep ideas coming. We really want to make a system which is as useful as it can be for you.

So what do we have planned?

First, we thought it would be really cool to make a better breeding planner. If you are planning a breeding, you might want to avoid certain dogs in the pedigree, either because they are known carriers of certain diseases or maybe they're just too influential and you want to think differently. We thought it would be nice to search for dogs without a certain dog in their pedigree, and maybe also the other way around.

Related to that, we are looking for ways to trace the ancestry

all the way back to the founders, We think it would be nice to see which founders are present in your dog's pedigree, and also see which breed they were.

Another thing high on our priority list is privately annotated pedigrees. I am sure a lot of you have much information given to you in confidence. And although we would like all information like causes of death, known diseases, etc to be available to all, we realise that might not happen soon. So we thought it might be a good idea to allow you to annotate pedigrees for your use only inside iwdb.org. That way you can have your own, private data there along with the pedigrees, and it would probably save you a lot of time when annotating further pedigrees for potential matings.

Moving on to health. We would like to make screening results available in iwdb.org. Whether they are for skeletal diseases like hip and elbow dysplasia, ocular examinations, heart screening or other things. There's a bit of work coordinating different methods, but we think that would be doable and quite useful.

Then there's the longevity issue. We will make that information more accessible by structuring causes of death and give you access to reports on that. Probably along the same lines as the breed research page. We would also love to expand on the features we already have for seeing the influence individual have on the breed, maybe by sorting it in time periods. It would be interesting to see how the popular sire syndrome develops over time for instance.

Last but not least, we would really love to make a lot of educational material available and do studies on the data we have collected. We've started on that, but have some way to go before we are where we want to be. We also have published some fun findings on sex and how many wolfhounds there are in the world, we will continue to do that kind of easy research and publish findings there.

Eventually it all comes down to what you want and need. Although we created this tool for our own needs, we want to develop it for your needs.

## Key addresses

- <http://iwdb.org/> The main database page
- <http://iwdb.org/research/> Breed club research page
- <https://www.facebook.com/iwdb.org/> Facebook-page

