










# WOLF CHRONICLE

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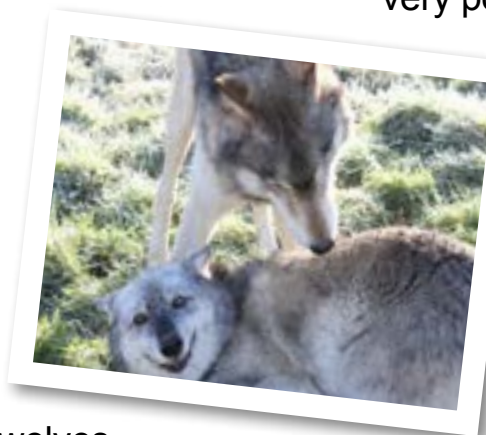


## From the Editor

### Dear Members

I hope that you had a lovely Easter and wish you a fun filled summer in 2016.

The wolves had their usual Pancake Day event and enjoyed the meat filled pancakes the children had prepared for them. On the Eggy Fun day the children filled cardboard eggs with tasty treats and watched the wolves make short work of huge goose eggs. There was also a craft event on an open day when children made cardboard wolf puppets (Mine was great!!) and little cartoon wolves using toilet roll middles. I do hope that you will be able to come and see our wolves



at one of this year's many exciting planned events. Wednesday open days 11am -4pm are really popular with lots of different activities that children can enjoy including crafts, a nature trail and in the holidays Quirk's animal road show.

You can handle snakes, spiders, giant snails and all sorts of other creepy crawlies. I settled for the giant rabbit!!

The children's walks have re-started so please go on the website or ring the office (0118 971 3330) and book early as they are very popular. Thank you for continuing to support us and with your help we have once again raised a lot of money for the projects abroad that work so hard to keep our wolves' cousins safe in the wild. We hope that you enjoy this issue and learn more about Arctic wolves in the wild & how cubs grow up.

Wendy



# THE ARCTIC WASTES

## Location

The arctic region is located north of the Arctic Circle and consists of parts of Alaska, Canada, Russia, Greenland, Norway, Sweden, Finland and Iceland as well as the Arctic Ocean. Despite the harsh environment and severely cold climate, the Arctic region is home to many specialised species that have evolved over thousands of years to survive in the very harsh conditions.

The Arctic region is also crucial to help maintain a balanced climate for the whole planet. Air circulation takes the warm air from the equatorial regions to the poles. Without such redistribution of heat the equator would get too hot and the poles too cold.

## Characteristics

The average temperature for the warmest month of July is below 50 degrees Fahrenheit. The average winter temperature can fall as low as -40 degrees F.

Although the lowest temperature ever recorded in the world was an amazing -90.4 degrees F in Siberia!!

The Arctic habitat is mainly ice and it has vast areas of frozen ocean and hundreds of miles of permafrost. (Permafrost is any soil or rock that remains frozen-below 32 degrees F- throughout the year. It must be frozen for at least two consecutive years to be considered as permafrost).

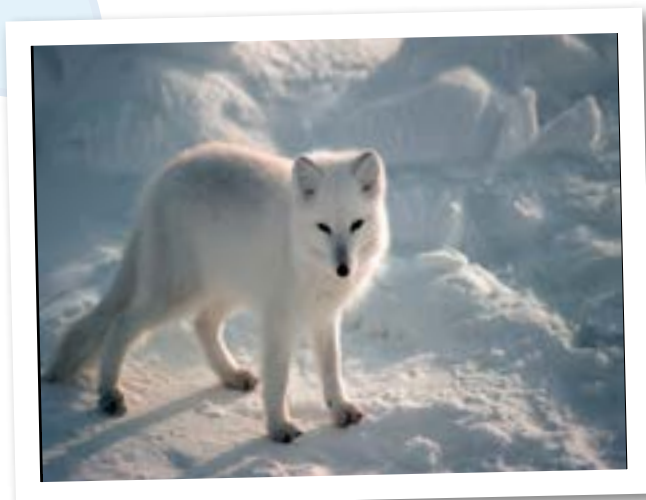
In Arctic regions precipitation (rain, snow or hail) levels are usually low and most falls in the form of snow. High winds scour the landscape regularly.

Arctic animals living in the Tundra above the Northern tree line include the ground squirrels, hares, lemmings, muskox, caribou, ermine, arctic foxes, wolves, wolverines and of course polar bears.

Vegetation usually grows close to the ground, such as lichens, mosses, herbs, dwarf shrubs and sparse grasses.

It certainly is a very hostile environment to live in!!

Written by Wendy Brooker





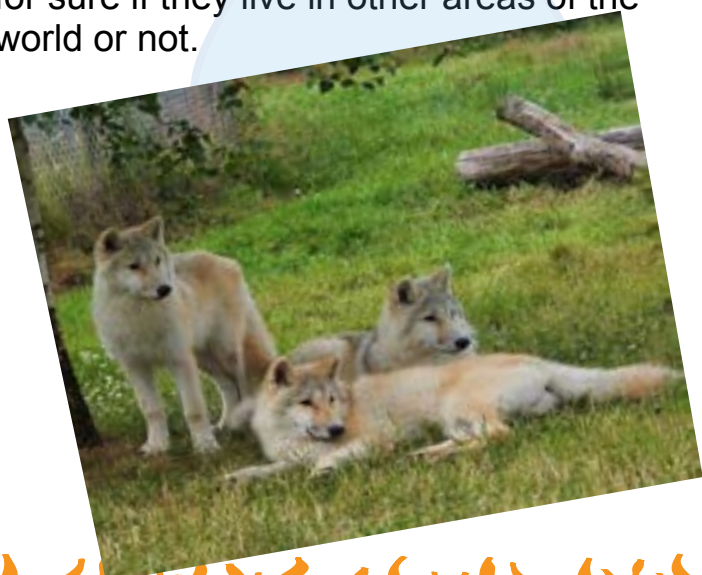


# WOLVES OF THE ARCTIC

We all know Pukak, Sikko and Massak, the magnificent white wolves at the Trust, who stand out from all the others. But do we know what they are and why they are white?

## Subspecies, not species

All wolves at the UK Wolf Conservation Trust are the “Grey wolf” species. This includes Pukak, Sikko and Massak, even though they look very different. They are Arctic wolves (sometimes known as Polar wolves or White wolves). Even Arctic wolves have a grey undercoat and are born a shade of grey. Grey wolves are found in many areas of the world. Each area has a different environment and holds different challenges. Wolves have to adapt and evolve to face these challenges, otherwise they wouldn’t survive. Because an Arctic wolf’s natural living area is so unique, Arctics look very different to other Grey wolves. So what is their natural living area? Arctic wolves are found in Greenland and the Northern part of Canada, including the many islands there. These areas have very few humans living in them, because of the harsh climate. This is why it is very difficult to study Arctic wolves. We still don’t know for sure if they live in other areas of the world or not.



## The High Arctic

Snow and ice, strong cold winds, a darkness that never ends... This is what winter is like in the High Arctic. Temperatures usually reach -40C and can even get below -60C! The sun never rises for about 5 months, so it is dark both day and night. The ground is frozen all year round, causing limited vegetation that only grows a few inches to a foot tall. This type of environment is called the treeless tundra. Despite looking empty in the winter, the tundra is bursting with life in the summer months. The sun might never set and the sky stays bright all night too. Temperatures slowly climb, getting up to +10C. The surface of the earth melts and plants have adapted to grow very quickly during this time. The plant-growing season is only about 50-60 days, compared to our growing season of at least 6 months! In addition to plants, plenty of lichen grows – a caribou’s favourite.

## Arctic prey

Because of extreme conditions, prey can be hard to come by. Arctic wolves have to have a large territory and travel long distances to find anything to eat. Arctic wolves mainly eat musk ox, caribou and Arctic hares. On top of this, they eat lemmings, ptarmigans, geese and other nesting birds. Arctic wolves are opportunists like other Grey wolves. They will eat seals, beetles and scavenge through human rubbish when they can. They can occasionally eat other wolves. Arctic foxes have twice been found to hunt and separate a polar bear cub from its mother! Even though Arctic wolves sometimes explore polar bear dens and hunt on sea-ice, they do not usually hunt polar bear cubs.

Turn over for more!



Cubs would not give them as much sustenance as a herbivore, and the wolves could get very hurt by the mother!

### How are Arctic wolves different to other Grey wolves?

The Arctic wolf is the largest subspecies of Grey wolf, though how big they grow depends a lot on how much they get to eat. We already know they have different challenges than other wolves. How do they cope?

To fight snow and ice, Arctic wolves have larger paws to use as snowshoes, and longer claws to help them grip on ice. As there are not many places to hide in the treeless tundra, Arctics have white fur to help their camouflage. Their surroundings are never pure white though, so an Arctic wolf's fur is never pure white either. They often have shades of grey or black in them, especially along their backs, and can even have shades of orange. Pukak, Sikko and Massak had strong orange markings on them when they were younger, but these faded as they got older.

White fur also helps wolves stay warmer, because white hairs have no pigment in them. No pigment leaves more room for air, which makes the hair completely hollow. The more trapped air there is, the warmer the wolf is. Arctics also have a much thicker fur coat. They can quite comfortably live in temperatures even down to -70C.

Arctic wolves have some clever systems to stop themselves freezing, in addition to a fur coat. They usually have shorter muzzles and smaller ears, leaving a smaller area for body heat to escape from. This is called thermoregulation. Their paw pads are extremely thick and they tend to have more fat around their inner organs to keep them warm.

Leg arteries, that hold blood travelling from the heart to the feet, sit right next to veins that hold blood travelling from the feet to the heart. The blood that circulates through the feet is cooled by the cold temperatures outside. As it travels back to the heart through veins, the neighbouring arteries with heated blood, warms the veins blood back up. This is called a countercurrent heat exchanger and is found in the legs of most birds, including penguins and ducks, the legs of husky dogs and fins of mammals like dolphins.

In the cold, blood vessels near the surface of the skin get smaller and narrower. This pushes blood away from the surface and more towards the middle of the wolf's body. Less blood on the surface of the skin makes the skin cool down, which means less heat escapes into the cold air. This is called vasoconstriction and happens in the tail, ears and legs. Feet pads can cool down to 0C! After a while, blood vessels will get wider and larger again, letting blood flow back to the surface of the ears, tail and legs. This warms them up again, making sure they don't stay too cold for too long. This is called vasodilation.



Turn over for more!



Other differences between Arctic wolves and other Grey wolves are larger carnassial teeth, a higher howl that travels further through the open tundra than a low howl, and thicker black rims around their eyes to protect them from the bright Arctic sun. Arctics often have a slightly darker eye colour for the same reason. Arctic wolf pups are born in May or June, about a month later than other Grey wolves.

#### A threatened subspecies?

Although there aren't many Arctic wolves around, they are the least threatened/endangered subspecies. This does not mean they don't have threats. They might get attacked by other wolves and polar bears. Wolf pups can be taken by birds of prey, like snowy owls. Humans taking over wolf territory is not really a problem. In fact there are so few people living in the Arctic, that Arctic wolves are one of the only types to not naturally fear people and run away. Industrial development is more of a problem, such as road building, mining and placing pipelines into their territory, as it disturbs their food sources.

In the past, wolves were poisoned and shot in Eastern Greenland and by 1932 they had disappeared completely. It took 40 years until wolves from the North populated the East again, but the number of wolves is still less than before. Nowadays in Greenland, 94% of the Arctic wolf's territory is legally protected. In Canada, most areas are not protected and Arctic wolves are often hunted for their pelts.

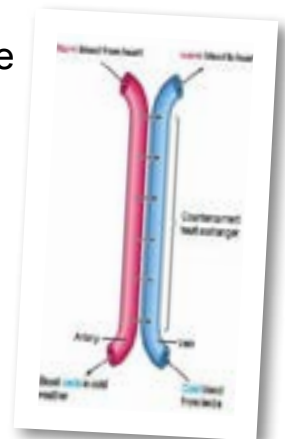
Global warming is the main threat for Arctic wolves, and is something we

are all a part of. It affects things like weather and temperature, which can cause snow in the summer or ice to melt. Things change too quickly and it affects the whole ecosystem. In 1997, winter arrived early and snow covered the ground by mid-August. Plants didn't have time to grow properly and herbivores were left with half the food they usually had. Musk ox and Arctic hare numbers dropped and this affected Arctic wolf numbers. An early winter came again in 2000. The 2-3 years of normal weather wasn't enough to help the musk ox and Arctic hare populations. Arctic wolves weren't able to get enough food to reproduce. It wasn't until 2004 that musk ox and Arctic hares become more plentiful and Arctic wolves started reproducing again.

#### Pukak, Sikko and Massak

Next time you visit the UK Wolf Conservation Trust, spend a few extra minutes at our Arctic wolf enclosure and remember the Arctics are much more than just a white coat. They are a special subspecies that we still know very little about. Take time to notice their long claws and smaller ears. Who knows? You might be lucky enough to hear them howl! If you have any questions, be sure to ask our Wolf Keeper or volunteers. We will be more than delighted to tell you all about our Amazing Arctic Wolves!

Written by Suvi Hall



A Counter-current heat exchanger



# Trust Wolves



## Mosi & Torak

Despite the winter being unseasonably mild so far, all the wolves' coats are in their full winter glory. As they approach their tenth birthdays, Mosi and Torak probably appreciate it not being so cold, although they do have warm straw beds in their kennels. Torak's coat is rich with colour and he is a stunning wolf. Mosi's coat is mellowing to a beautiful silver colour.

Torak is on medication for arthritis which has helped him enormously and he runs about like a youngster now. This is a great example of how socialisation of our wolves benefits their health because they are closely monitored, we were able to spot Torak's condition early and take the steps to ensure his comfort. Old age hasn't slowed Mosi down, she still takes it upon herself to greet visitors when they arrive in the car park and keep tabs on all that is happening on site. Last year she busied herself digging a large den in the side of the mound in her enclosure (with occasional help from Torak). Sadly the wet weather we've had over the last few months made the den partially collapse, so Mosi may have to do some more digging once the ground dries out.

She loves to dig whilst Torak loves sleeping under his favourite tree. Torak and Mosi still enjoy going on their enrichment walks. Torak always takes the opportunity on the first part of the walk to have a good roll, on any spots the tractor may have passed over. You have to be patient as he takes his time! Even Mosi has the good sense not to interrupt Torak's enjoyment; although once the walk gets going she will make sure she doesn't miss out on anything Torak is sniffing. He is very tolerant of her pushy behaviour, but will occasionally put her in her place with a snarl!

Mosi and Torak were given a large trout each to eat and Mosi carried hers around or sat and guarded it for a couple of days. She didn't want it but she wasn't letting Torak have it either!! He would casually stroll by ready to grab it, but then a low growl with a flash of teeth would stop him. Torak and Mosi remain great favourites with volunteers and visitors alike and, as they are the first wolves to be seen when you arrive on site, are a wonderful introduction to the work we do here at the Trust.



Turn over



# Trust Wolves

**Pukak, Massak & Sikko** are always great favourites with the public who love to see these large fluffy white wolves. Visitors who braved our cold spell at the beginning of the year were rewarded by seeing our Arctics wearing their thicker winter coats which keep them warm to - 70 degrees.

The Arctics love enrichment games. One particular day our three Arctics were given a hessian sack soaked with scented tea tree, eucalyptus and lemon. Three Arctics into one hessian sack won't go, so a game ensued. When the thrown hessian landed, Pukak was closest, got there first and no doubt thought it might contain some food, so ran off with it. Massak and Sikko chased after him in hot pursuit as this was obviously something worth having! When Massak finally caught up with lower ranking Pukak he showed his dominance by giving a snarl, but Pukak was determined to hold on to this newly acquired treasure.

Massak, sensed this and even though he is the dominant male, didn't push it. A case of I could but I won't. Sikko stayed back intently observing her two boisterous brothers.

Although smaller of stature, she does have the benefit of being the brains of the pack and did what she does best: goes in, winds her brothers up further and while they were too occupied to notice, grabbed

her prize and scarpered. Clever girl ! So it was now Pukak's turn to wait on the side-lines for his opportunity to grab the sack again. Massak decided to content himself with rolling in places the sack had previously landed and only got hold of it when Pukak was bored with it. This game lasted a good two and a half hours, right up to lunch when a large chunk of deer leg was thrown to each of them, appearing as if from the heavens. Massak was in a bit of a dilemma, as he wanted both deer leg and hessian sack. Eventually though, Massak felt he had owned two prizes for long enough, so finally went off to a shady spot to concentrate on his lunch. Mind games such as these can last for days if the prize is thought worthy enough.



Turn over for more!

Arctic wolves : Mike Collins





# Trust Wolves

In their full thick winter coats, Tala, Tundra and Nuka can feel the downside of the unseasonably warm winter. A wolf cannot take off layers like humans can, to stay cool, so they cut down on exertion and spend a lot of time resting under the pine trees in the top corner of their enclosure. The outer guard hairs and top inch or so of underfur may get wet in the rain but the fur next to the wolf's body remains wonderfully dry.



Nuka has the endearing habit of shaking himself dry just when a handler is within splattering range. An adult male wolf's winter coat can hold a lot of water and mud!!

They love enrichment "toys" and it's so amusing to see Tala running around carrying an entire oven ready chicken while trying to look over her shoulder to see if Tundra's chasing her.



Tundra has retained her rank as dominant female and can often be seen quietly asserting her position over Tala. A hard stare, a change of Tundra's tail posture, or maybe resting her chin on Tala's back, is all that's needed for Tala to back down, though sometimes it will escalate into a full-on chase. Nuka will often intervene if the two girls get too aggressive and he has been seen jumping on them to stop them.

On visitor walks, Nuka loves to receive a good tickle from his favourite handlers and often ends up rolling over to get a good belly rub. Tala loves her walks, but is aware that her sister has her eye on her all the time!!

Tundra is more confident on walks now and will approach the visitors more closely if she feels safe. Nuka and Tala love to stand on the big log in the bottom field on a walk and pose for the camera while Tundra looks on from a distance. Sometimes Nuka forgets he is balancing on a wet log, tries to rub against the handler and falls off in a less than dignified way!



Tala, Tundra & Nuka: Pete Morgan - Lucas & Francesca MacIlroy





# Trust Wolves

Now in their full winter coats both **Mai** and **Motomo** look stunning, if a bit wet and muddy at times. The work experience students have been providing enrichment for the wolves in the form of hessian sacks stuffed with straw, to which various scents have been added. Mai in particular loves rolling on these and carrying them around with her; Motomo is somewhat less enthusiastic, preferring to sniff Mai after she's finished her scent-rolling. At the beginning of January, both Mai and Motomo were showing signs of the impending breeding season and were doing more scent-marking around their enclosure and Motomo started to carry out more regular 'perimeter patrols' in addition to the usual fence-sparring with the Arctic wolves in the adjoining enclosure. They were also playing together; usually Mai would approach a resting Motomo and poke him with her paw. When he eventually responded (it can take several paw-pokes...) they would both then play 'chase' around the enclosure for a while. These play sessions were generally short; in their full winter coats and with the weather being unseasonably warm, both Mai and Motomo clearly felt the heat and after a few minutes would retire – panting heavily – to rest in their favourite places at the edge of the copse in the upper corner of the enclosure, from where they could keep an eye on the Arctic wolves and, more importantly, the food shed.

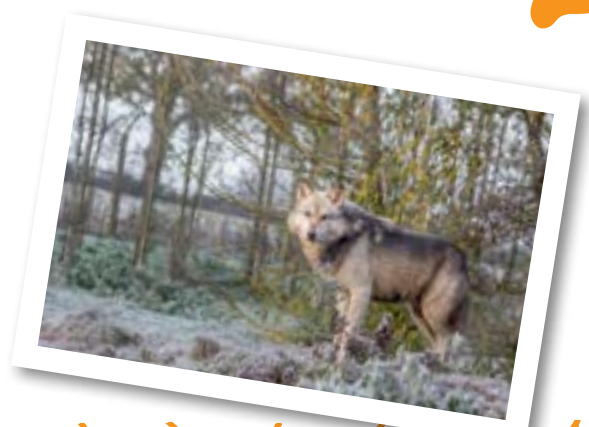
Their huge den in the mound also needed re-excavating, as the extremely heavy rainfall at the beginning of the year caused the roof to progressively cave in and what was once a den became a sunken pit. Given the strength of a wolf's paws, re-digging a new den did not take too long once Mai and Motomo started.

Mai's desire for food seems to fluctuate – at times she will eat everything offered and even steal some of Motomo's, at other times she leaves a significant amount, but occasional piles of feathers in the enclosure make us think they are supplementing their diet with a freshly-caught pigeon or pheasant while nobody is looking.

February 14th – Valentine's Day – is usually said to be the time of greatest affection between 'bonded' pairs of wolves; Mai and Motomo have again perpetuated this tradition. They are a very loving couple.

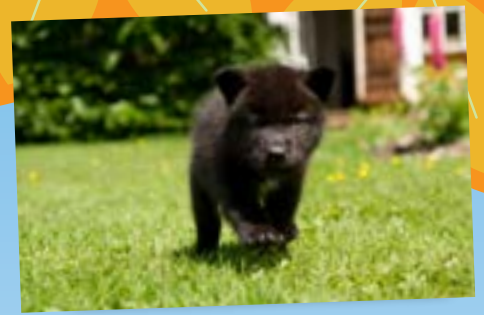


Mai - Mike Collins, Motomo - Calum O'Flaherty





# WOLF CUBS



Spring is a time when nature renews itself with many flowers blooming, trees getting their new leaves and many animals have their babies. Wolf cubs are always born in the spring when hopefully the animals they hunt have babies and food supplies are plentiful. The story of how this occurs is very interesting. The dominant male and female wolf will mate in early spring, usually February. In a pack these will normally be the dominant breeding pair which may have been together in previous years. Wolves usually mate for life. Wolves are mature at about two years of age and will start looking for a mate if the pack situation permits this. Usually only one pair in the pack will mate although in a large pack there may be more. The period of gestation, the time between mating and the birth of the cubs, is about 63 days. At this time of the year the availability of food is usually improving so the pregnant female will be well nourished and the unborn cubs will grow to a good size before being born. The female wolf will often, but not always, dig a den to go to ready for when the cubs are born. This can be just a small hollow in the ground but can be a large hole several feet deep. The cubs are born with their eyes closed and are deaf. They have small curled up ears and blunt noses. The litter, the number of cubs born, is usually four to six but may be as small as one or as large as eleven!

The cubs will feed off milk from their mother for the first few weeks. During this time they snuggle up to their mother for warmth making little whines and yips if they can't find her. Their eyes open when they are about two weeks old. These are usually blue but will usually change to greenish hazel as they mature. The cubs will gradually gain enough strength to stand and their sense of smell develops.

When they are about a month old the cubs will be able to leave the den where they will meet other pack members and experience the outside world. Cubs that stray too far from the den will be picked up in the mother's mouth and carried back to safety. They may also be carried in this way if the pack moves on to a different den for any reason. At about five weeks old the cubs will be able to digest small pieces of meat in addition to their mother's milk. The parents will bring food in their stomachs and the pups will lick their faces to encourage them to feed them. The parents will then regurgitate the food for the cubs to eat. As the cubs grow up they will begin to mix with the pack and also spend time playing with each other. This is a good way to strengthen their muscles, discover who can be leaders ready for pack life and also to learn how to work together. At about twelve weeks old the cubs start to become more independent. They will start to chase and sometimes catch small creatures such as mice and voles. This is when they learn to pounce on prey. As time goes by they will get stronger and more confident until they are eventually able to accompany the adults on a hunt. They will learn how the pack works together to catch prey and also the best hunting methods. At about four months old the cubs are able to follow the pack as it moves on in search of food and may stay with the pack for two or three years. Some will go off to find their own territory and start their own pack and have cubs of their own.

It is the circle of life.

written by Linda Dennett.



## School Time

The first summer of a pup's life is important. A pup has to learn many lessons on how to live within the pack. Survival depends on knowing wolf pack rules.

Help this pup through kindergarten. You must stop at each learning station without crossing or retracing your own path.



Become friends with other pack members. The bonds will help keep the pack together.

Learn to obey pack leaders.

Test strengths and weaknesses of litter-mates. Discover who is top pup.

Learn your place in the pack.

Learn hunting skills from parents.

Strengthen muscles. Develop coordination.

Learn behaviors to avoid hurting each other.

**Graduation Certificate**  
You have learned your lessons, and are a working member of the team.

# Book Reviews



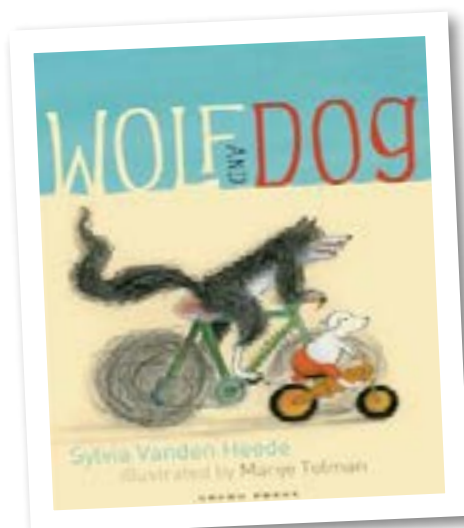
Discovering Wolves- Revised  
by Nancy Field and Corliss Karasov.

This amazing book was revised in 2011 to reflect changes surrounding wolves and environmental issues. This book takes you on a fun filled journey into the world of wolves and helps to stimulate children's thoughts and dispel the myths surrounding these greatly misjudged predators. It sends a clear message about the need to conserve habitats and for the protection of wolves in the wild.

There are 18 fun filled activities and 34 coloured stickers amidst the more serious information about wolves and how they live. You can track wolves in the wild, be detectives and solve a barnyard mystery, survive a season as a wolf or meet an actual wolf pack. You can even go to wolf cub school!!

Children of all ages can have fun whilst learning about these amazing animals and how they live and survive in the wild.

Price £4.50



Wolf & Dog by Sylvia Vanden Heede and illustrated by Marije Tolman.

A delightful book of very amusing, cleverly written short stories about a wolf and his cousin a dog that have many adventures together. Wolf likes rhymes, so the pages are laid out as if the book was a book of poems. Wolf is wild and self-centred and lives in the forest and dog is tame, has a human boss and is proud to be a guard dog. Wolf hates green food and wants red foods like meat. Dog eats lettuce and green foods because they keep him slim (or so he thinks). They discuss and argue about important things in life like food, family and fleas and the differences between their ways of life! Wolf is always teasing the dog but in the end the dog has the final laugh. You will have to read the book to find out what happens.

Price £7.99





## *Fund Raising*

Ella Barnes & her family visited the Trust in February. Ella presented us with a cheque received by Mike Collins (wolf keeper) for £30 which was raised by herself for doing a sponsored silence. Well done Ella, as I know I couldn't have kept quiet for very long.

Bonnie Davies visited the Trust at Easter with her family. Bonnie had raised the total of £102.32 by asking friends & family for any loose change they had. Bonnie is pictured presenting her donation tin to Wendy Brooker (volunteer.) Well done to Bonnie as a lot of asking went in to achieving this amazing total.



Did you know the Trust collects used postage stamps, that have a small piece of envelope attached. This is then sold to raise funds for the Trust. So start saving & bring them with you on your visit to see the wolves.

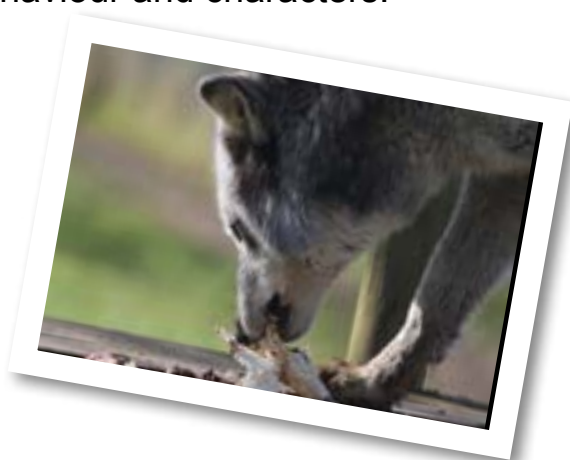


## Wolves Pancake & Eggy Fun Day

The day dawned cold but sunny and the Arctics, Beenhams and Mosi and Torak were put into their side enclosures so that the children could go into the main `enclosures, look around, see the dens made in readiness for the breeding season and place the stuffed pancakes they had made in different places for the wolves to find.

The pancakes were filled with a variety of cooked meats including black pudding, sausages, lamb and ham as well as fish and cheese. They were then carefully wrapped and tied with edible raffia. The Beenhams were the first to have pancakes and whilst Tala and Tundra were a bit wary at first, Nuka must have "wolfed down" at least 8 pancakes!!! Motomo was too wary to come close to so many people, but Mai was rapidly gathering up the goodies and she had quite a pile in the end.

I hope she shared some with Motomo!!! At the Arctic's enclosure guess who was first to run in and find pancakes-yes it was Pukak who loves his food. Massak and Sikko soon joined in though and enjoyed the tasty treats. Mosi watched where the children put the pancakes and then dashed in after they had gone out to run around checking which was the biggest and best before eating any. Torak calmly wandered back and picked up some pancakes to take away and quietly eat at a distance as he usually does; ignoring Mosi's frantic dashing about. All the wolves and children had a great time and the children learnt a lot about their "dinner guests" behaviour and characters.



For Easter on Children's Eggy Fun Day the wolves were given little boxes filled by the children with a variety of food including cheese, black pudding, tuna & sausages. In the Arctics & Beenham enclosures these boxes were then placed along with geese & chicken eggs for the wolves to find, when they were released back into the enclosures. In Torak / Mosi & Mai / Motomo the eggs & boxes were thrown into the enclosure, with surprising results as the eggs didn't break on landing. An eggstatic time was had by all.



Mosi & Pukak : Mike Collins



# Events

## Visit Wednesday

Every Wednesday 11am - 4pm

Come along & see the wolves & at 2pm and watch the wolves being fed. Additional children's activities will be held during school holidays.

Wednesday 1st June Quirks Animal Roadshows will also be attending.

Pre booking not required. Junior member free entry on production of entry ticket.

Adults £8, children 3-12 £5, under 3's free.



## Children's Wolf Walk

🐾 Tuesday 31st May 11am,

Tuesday 26th July Tuesday 2nd August &

Tuesday 9th August all at 12 noon,

Have a talk all about the wolves at the trust, and then join the wolves on a walk around

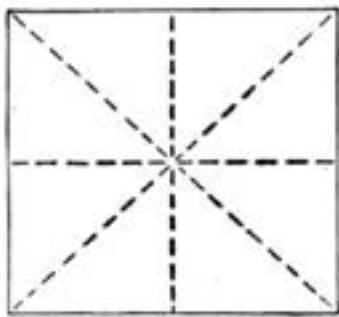
the fields at the trust. maximum of 1 adult on each booking. pre booking required.

Adult £15 Junior Member £12.

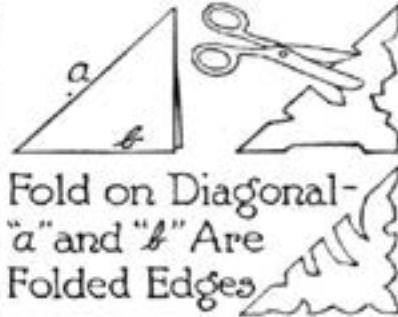


**Please note:** Any dates here on after will no longer have wolf contact, i.e. no "meet and greets". This is due to the Ambassador wolves having matured now that they are 5 years old. Walking with the wolves will still take place and there will be plenty of photographic opportunities and chances to observe them up close enjoying their walk.

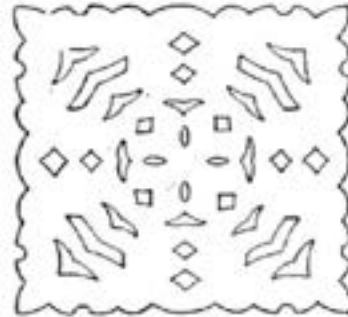
# Paper Snowflakes



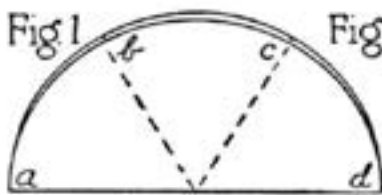
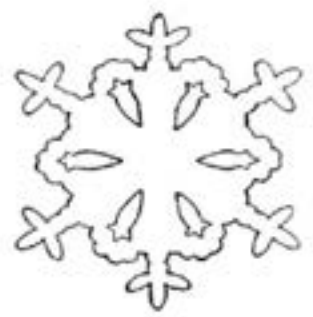
Bookfold



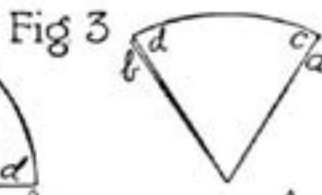
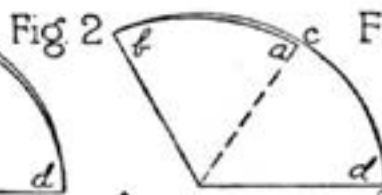
Fold on Diagonal-  
"a" and "b" Are  
Folded Edges



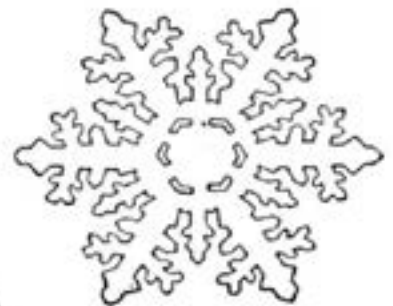
Cut Notches in Any Manner



Fold Circle on  
Dotted Lines  
into Sixths



SNOW STARS



## Six Facts About Snow

1. To snow the temperature must be below 32 degrees.
2. Snowflakes actually start as tiny ice crystals that form from water vapor that freezes in the atmosphere & each snowflake is made up of about 200 ice crystals.
3. The size of a snowflake depends on how many ice crystals connect together & snowflakes have six sides.
4. On average snowflakes fall from the sky at 3-4 miles per hour. Snow is clear but looks white because of the way the light reflects off of the ice crystals.
5. Close to 80% of the world's fresh water supply comes from snow and ice.
6. Heavy snowfalls are called snowstorms. Heavy snowfalls with high winds over 35 miles per hour with limited visibility are called blizzards.