Wildlife Conservation
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Lecture – 19
Mechanical capture

[FL] Let us now move forward in this lecture to look at certain techniques of Mechanical Capture in restraint of animals.

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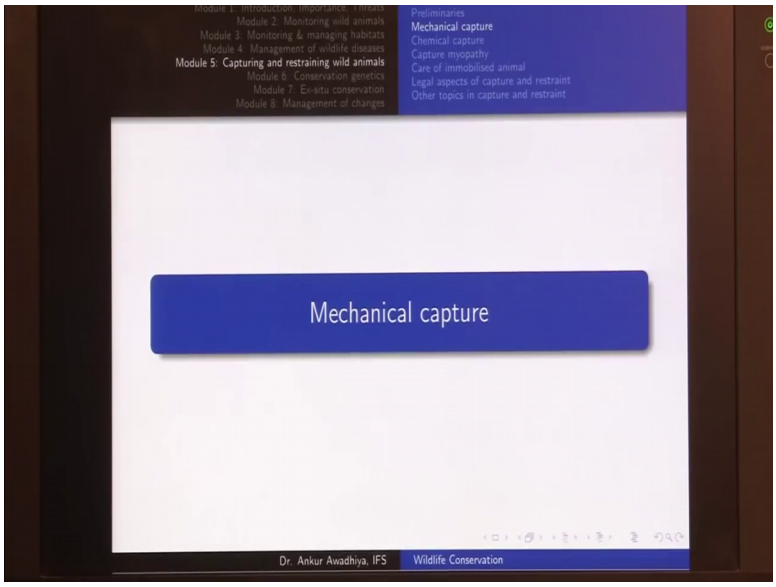

So, as you remember from the previous lecture mechanical capture means capturing using certain machine certain contraptions not just the use of force, but also some devices that are put there in the field.

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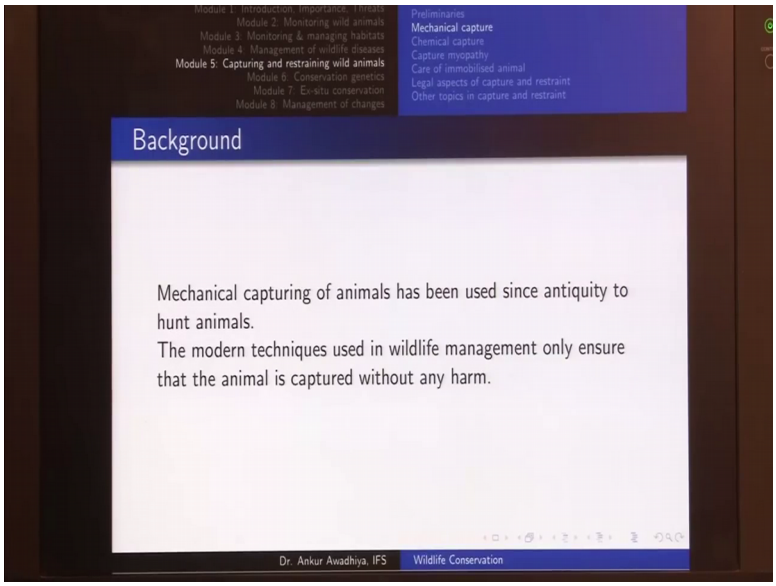

Now, mechanical capturing of animals has been used since antiquity to hunt animals. So, basically whenever read in story that there was a certain [FL] who put up trap to capture certain birds it is a mechanical capture, but the difference is that while our ancestors used mechanical capturing of animals to hunt animals to kill animals the modern techniques used in wildlife management only ensure that the animal is captured without any harm. So, for instance, even in the case of foothold traps, in the case of earlier traps they used to have iron close.

So, if there was any animal who put its legs there it would bait the legs very fearlessly and the animal might even lose its leg, but it would also ensure that the animal is not able to move out of that place.

Now, in the case of our modern contraption in case of using just the iron mouth pieces in the trap we go for a rubberized covering. So, that the animal is captured, but the animal is not harmed in anyway.

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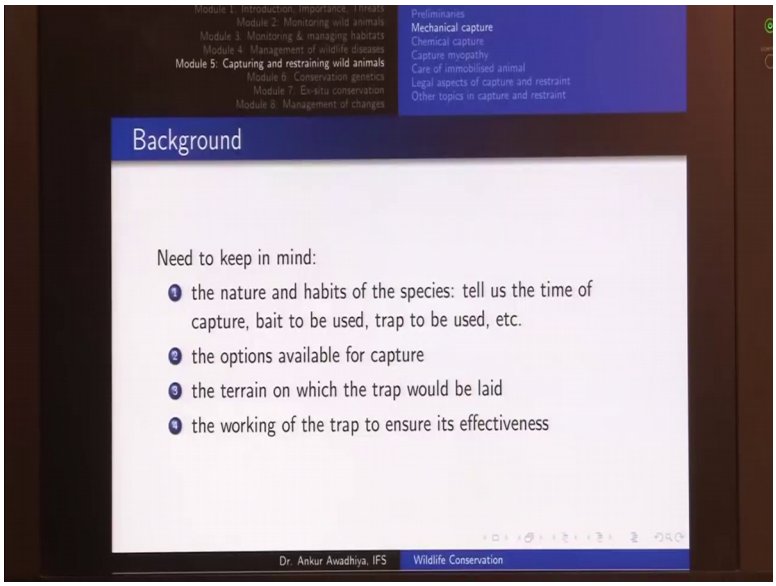

Now, whenever we are using mechanical capture for the capturing of any animal there are certain things that need to be kept in mind.

The nature and habits of the species which tells us the time of capture the bait to be used the trap to be used and so, on. So, for instance, if you are trying to say capture a leopard. Now, a tiger uses a larger sized prey, but a leopard uses a smaller sized prey. So, for instance when we are trying put up bait in the trap the habit of the animal the nature of the animal would tell us what sort of a bait that should be put in the trap.

It also tells us the time of capture. So, for instance for those animals that normally move in the dawn and dusk period called as crepuscular animal. We would put up our traps right before dawn and dusk. We would check our traps right after dawn and dusk just to ensure that the animal is not kept there in the trap for a very long period.

On the other hand for the case of nocturnal animals, so, the animals that are active in the night period we would set up our traps in for the whole of the night and then check it in the morning. In the case of diurnal animals that are active only during the daytime we would set up our traps early in the morning and then check them up right at the end of task. Next we need to keeps the options that are available for capture. So, for instance in the case of a leopard, do you go for a cloth trap or a foothold or things like a box trap or maybe you should go for a chemical immobilization, what are the options that are

available to capture the animal that needs to be kept in mind. So, as to be able to choose the best option or the most efficient option.

Next is the terrain on which the trap would be laid. Now in the case of traps that are used for crocodile for instance, these traps would need to be kept inside water. So, they would be half inside the water half hanging out in the air.

So, when we are looking at the terrain we need to ensure that even when certain amount of mud gets into the trap the traps still works. Also in the case of traps such as the foothold traps. So, foothold traps are generally kept on the ground. Now the terrain where we need to work is extremely rocky then the foothold traps might not work because the animal might be using n number of different routes. So, the terrain on which the trap would be laid also needs to be kept in mind. And also the working of the trap to ensure its effectiveness because generally what we have observed with the field is that once you have moved out there in the field you are trying to lay your trap and you find out that a certain spring is not working or maybe the doors of the trap have become jammed. So, they are not coming down as fast as they should.

So, in a number of situations we also need to perform some amount of [FL] out there in the field. So, essentially we would have to tinker with our equipment.

So, as to ensure that it continues to work in the field after we have deployed the trap. In that case it is also extremely crucial to know the working of the traps so, that any amount of modifications can be made. Now let us begin with the pitfall trap.

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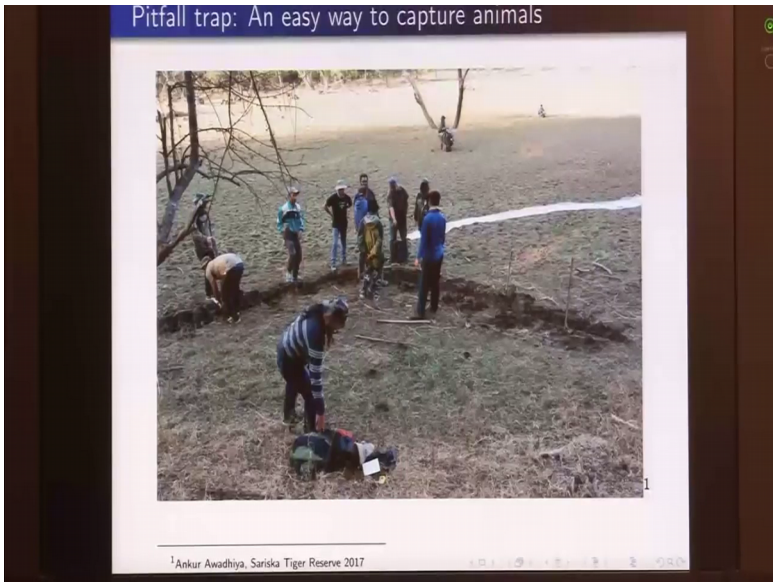

Now, we will look at a pitfall trap in great detail because this is one of the easiest traps that we can set up in the field. Now this trap is generally utilised to capture small animals especially the amphibians and the reptiles. So, basically if you want to notice what are different kinds of snakes come out in your area or say what different species of frogs are there near you pond this is one trap that you would set up. The setting of the trap is very easy. So, essentially you demarcate an area out there in the field that is in the shape of a v. So, this v could have a very large angle, but it would be in the shape of a v.

Now, once you have demarcated this area you generally use a small shovel of or a plow to mark this area out in the ground.

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Once that is done at certain locations you would dig holes. So, this is an activity that we did in this Sariska Tiger Reserve. So, we would dig these holes in which we would be able to install buckets.

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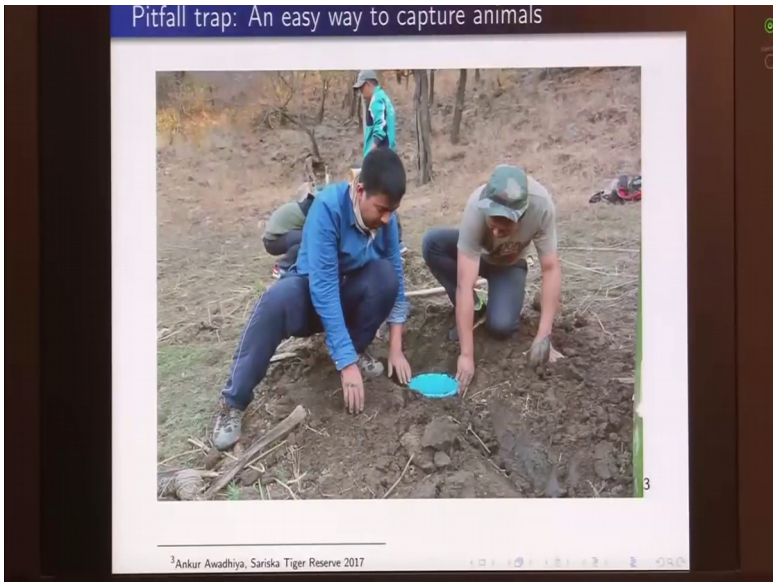

Now, this could be buckets this could be dustbins. The only thing that we need to ensure is that the edges need to be near as vertical as possible. So, that once an animal has fallen into the trap it would not be able to come out of it. Plastic is generally preferred in these

situations because the walls are extremely smooth which also prevents the animal from getting out.

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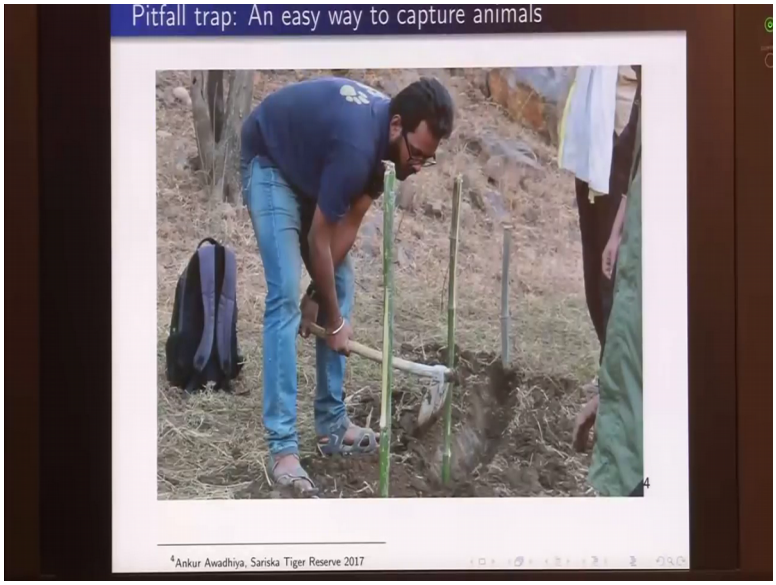

Once you have done that we and we have marked these areas out there in the ground. So, we now use a spade to make it more deeper to create some sort of a trench into this area.

And then we would install certain bamboo bowls or any wood that is available just as a post.

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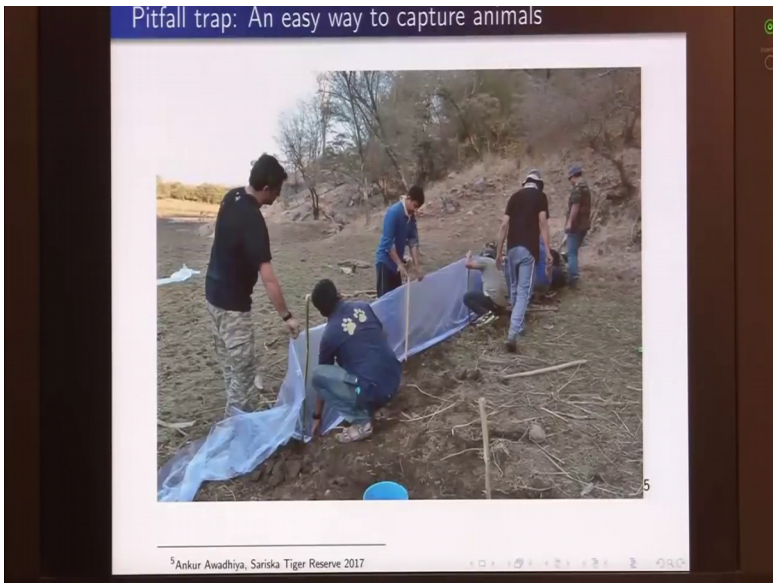

Now on these bamboo sticks or the post next we tie a sheet of plastic. Now this sheet of plastic would go the complete way in the shape of v.

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And the ends would be tied. So, from one end to the next end it would be tied to the sticks.

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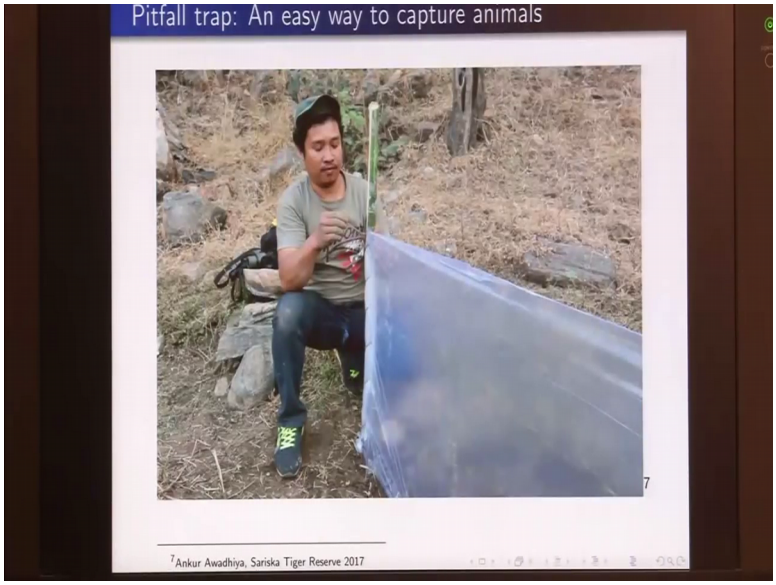

Now in this case while tying it is important to ensure that this plastic sheet it remains as the vertical and as tight as possible. Now why are we doing this? Because this sheet

when it is extremely tied would behave like a wall for the animal and we will come to that in a short while.

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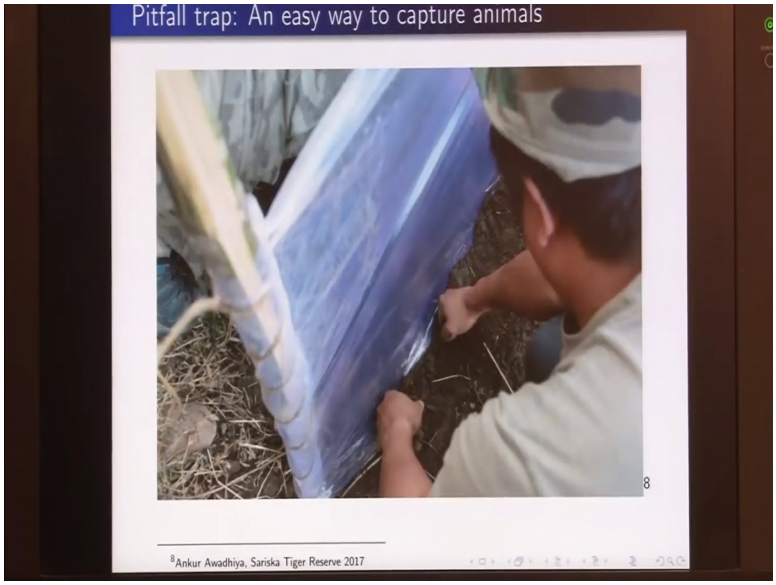

Now once you have installed the sheet then because we had a trench there, so, the ends of the sheet the lower ends of the sheet are then put inside the trench and then mud is put there. So, that this end becomes completely covered with mud.

So, essentially we are just creating some sort of a wall for the animal.

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Now, the placement of the buckets or the dustbins is such that half of the bucket falls on one side and half of it falls on the other side. And any overhangs that were there are then cut off. So, what you are doing in this case is that in the case of certain animals such as snakes they move alongside the walls.

So, if there is a snake that is walking that is moving from this side to that side then it should not be able to use these over hangs as a bridge to move from the side to the next side.

So, once we have cut these ends and the snakes tries to move in that direction it will fall into the trap.

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Once that is done the next step is to put certain amount of litter into the trap. So, we generally put some leaves into this trap. Now why this done? Because in the next morning whenever we come to look at these traps if there is sun that has already come up, so, these animals would be exposed to the sun and might even start dehydrating desiccating out and even dying.

So, when we put certain leaves here, so, the animal can use these leaves to protect themselves from the sun.

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So, once we have put that, so, this is how finally, it would look. So, it is a very straight wall of plastic and there are no overhangs here. So, if the animal moves here it drop and it already has certain amount of protection in the form of litter.

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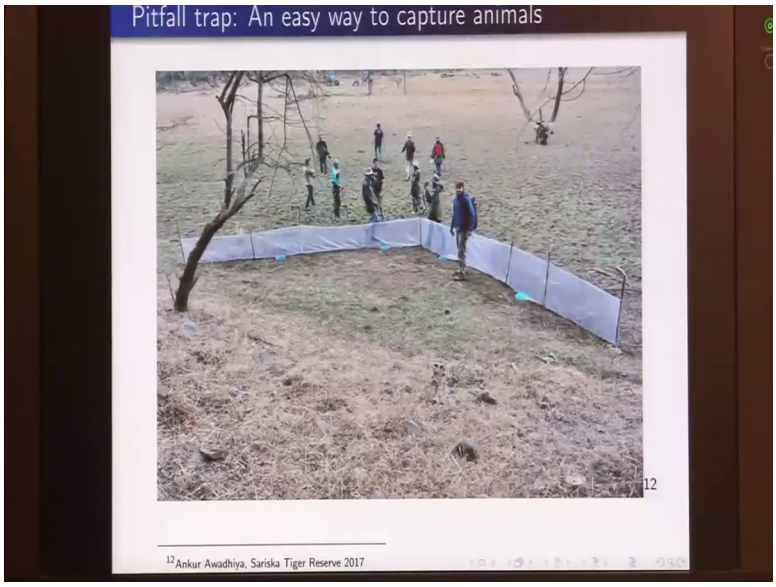

And this is how the trap would look in total. So, this was the area that we had demarcated in the shape of a v. So, there are a number of bamboo sticks here. We have this wall of plastic and we have all these four different traps. Now, it is important to note here that if you have an animal that is moving on this side then also it will use the same

trap it will fall in the same trap and if there is an animal that is coming from that side it would also move along the walls and will fall into the trap, so, which is why we had kept these buckets. So, that half of it is on one side and the other half is on the other side.

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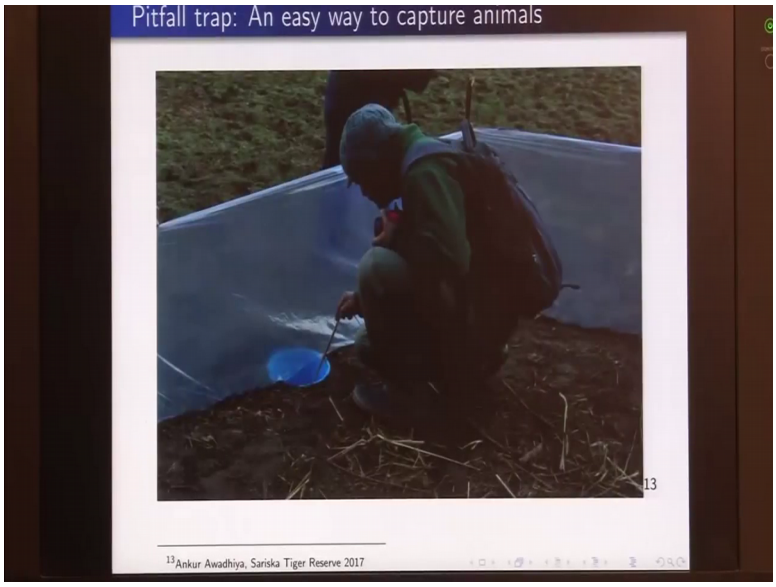

So, we set these traps out in the evening and the next morning when we go to this location the first thing is to look for the animals using a piece of stick. Now this stick is extremely crucial because as we saw a short while back we are using these traps to capture amphibians and to capture reptiles. Now if there is a venomous snake that is out there in this bucket you would not want to put your hands directly into the bucket in which case you might even get a bite from the snake.

So, the first thing is to uses a stick to gently prove what is inside of this trap and what are the things that you can take out.

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So, like this is one animal that will be found inside this trap.

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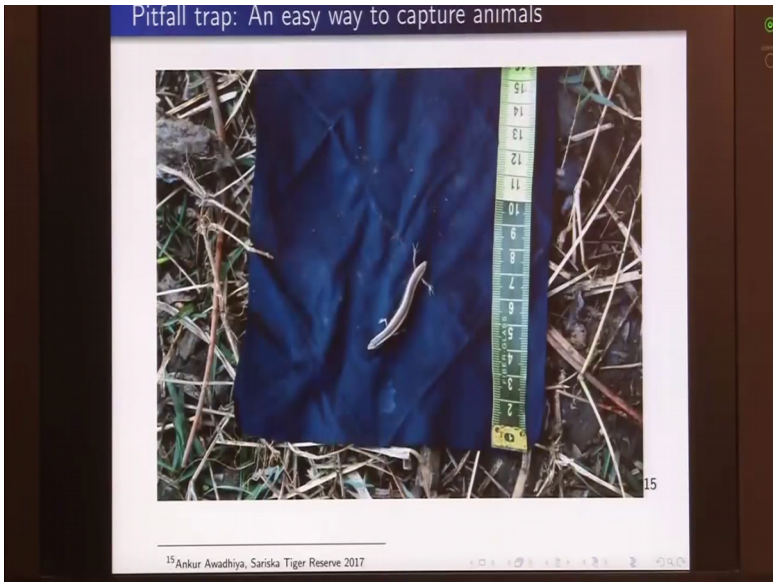

So, once you found your animal then you can do whatever you want with those. So, in our project, we wanted to take measurements of these animals whatever we are found and to document them. So, we kept them on a black sheet of paper took scale and then took their readings. So, pitfall trap is one of the easiest traps that can be set up and it is extremely effective.

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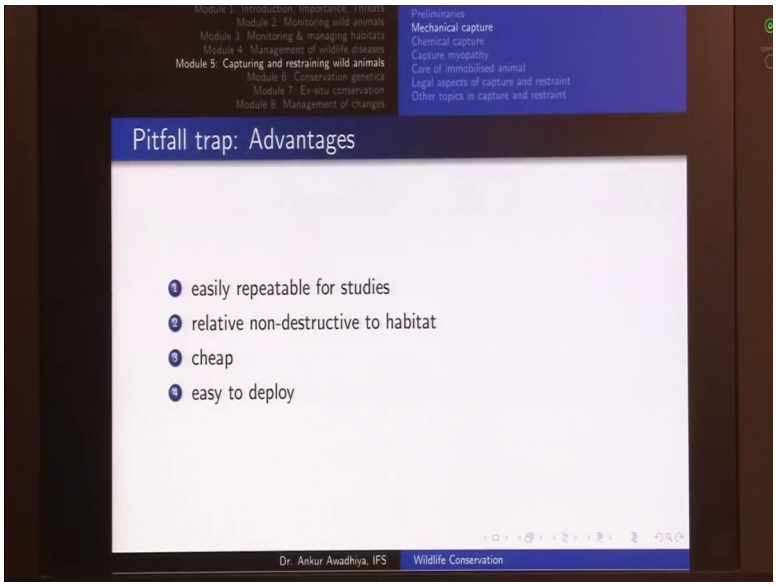

The advantages are that it is easily repeatable for studies. So, essentially if you want to observe if the population of amphibians in your ponds is going up or down, you can set up trap now. And then you can set up a trap say in the next year in the same season and then we can very clearly see whether the number of animals that fell into the trap has increased or whether it has gone down.

So, it is easily repeatable for studies. It is relatively non destructive to the habitat because the only amount of disturbance that we had created in this case is this small trench which was also then filled up with the soil.

Then later on once you are reinstalling in these traps you will take everything out. So, you will not leave any sheets of plastic or the bamboo or the rope for the dustbins here. So, the only thing that remains in the field after you are done with your study is only a small mark that was out there that shows where the trap was setup.

So, it is relatively non destructive to the habitat. It is extremely cheap because you are making use of plastic dustbins, a sheet of plastic some ropes and the bamboo bowls or the wooden sticks you can get out there in the field and it is easy to deploy.

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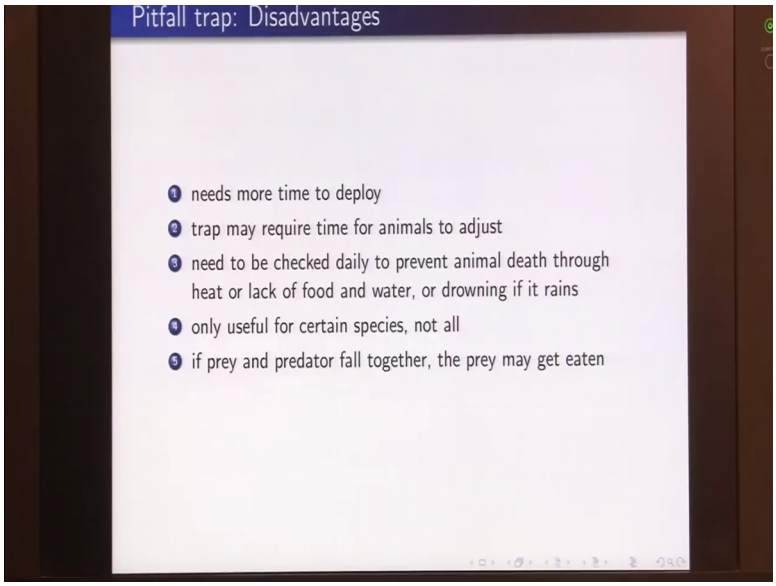

You can even use people who are illiterates to deploy this trap, it does not require quite a lot of technical know, how. But then the disadvantages it needs more time to deploy. It is extremely labour intensive because you need to dig a trench you need to tie everything.

So, it is it takes quite a lot of time to deploy. It may also require time for animals to adjust because in the case of a number of animals whenever they find anything new that is out there and their habitat they try to avoid it.

So, it may require certain time for animals to adjust. So, essentially when you are taking readings this year and you are taking readings the next year and if you have not kept in mind that the animals required this time to adjust in the readings may not be correct. It needs to be checked daily to prevent animal death through heat or lack of food and water or drowning if it rains.

So, not only as it labour intensive in terms of placing trap, but you also need to check it every day otherwise your animal might die. It is only useful for certain species not all. So, it is only used for species like reptiles and amphibians, but for larger animals we generally do not use a pitfall trap. Also if prey and predator fall together, the prey may get eaten. So, essentially if you are using this trap to estimate the number of amphibians that are there in your pond and if a snake falls into the trap you are not sure how many amphibians were there in the trap before the snake fell because the snake would have eaten away all your frogs.

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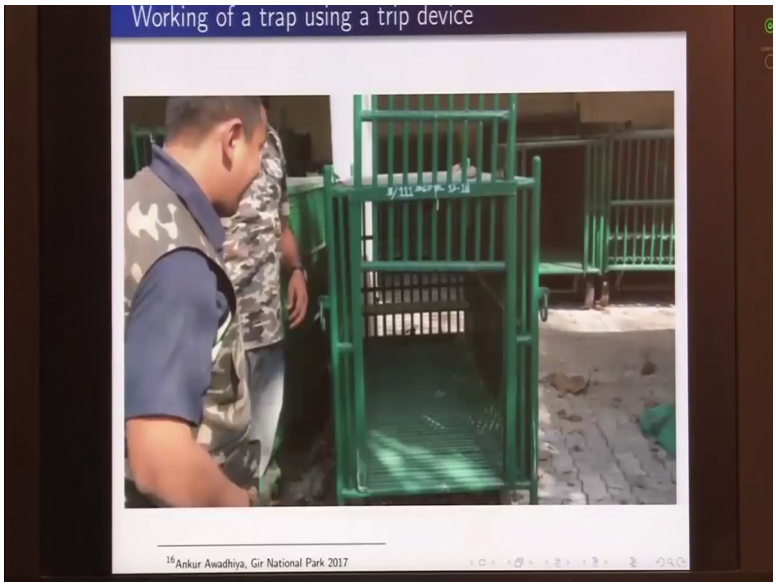

Another trap that we use is a trap that uses a mechanical device. So, let us see this trap an action first. [FL].

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Now, what do we have in this trap? So, this trap has this raised area out there in the back which is connected with a trip wire to the from the top of this trap to this gate in the front.

So, essentially you put a bait for the animal somewhere inside. So, you might hang for instance a piece of meat inside. When animal goes inside to eat that meet and when it

presses on this particular lever arrangement or the trip arrangement, it would then make this door fall down and then the animal will be trapped.

So, let us look at it once again, please make sure that you see that when the person is pressing on that lever this door falls. [FL].

Now, we use these traps or such traps for the capturing of larger animals especially animals like leopards. And one thing to note here is that you can see that this end has a space out there. So, essentially this door does not come to the very end, but there is a small split left here. Now this split which is close to around 2 inches or one and half inches is left. So, that when the animal has got an inside and even if its tail is lying out here the tail would not be cut because of the action of the door. So, once we have captured the leopard in such traps, the next thing is to transport it and we make use of cages.

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So, this is one cage for the transport of animals we have wheels here and so, it can be very easily put into a vehicle to be transported to long distances and then later on when the animal has to be left into a facility we make use of a ramp.

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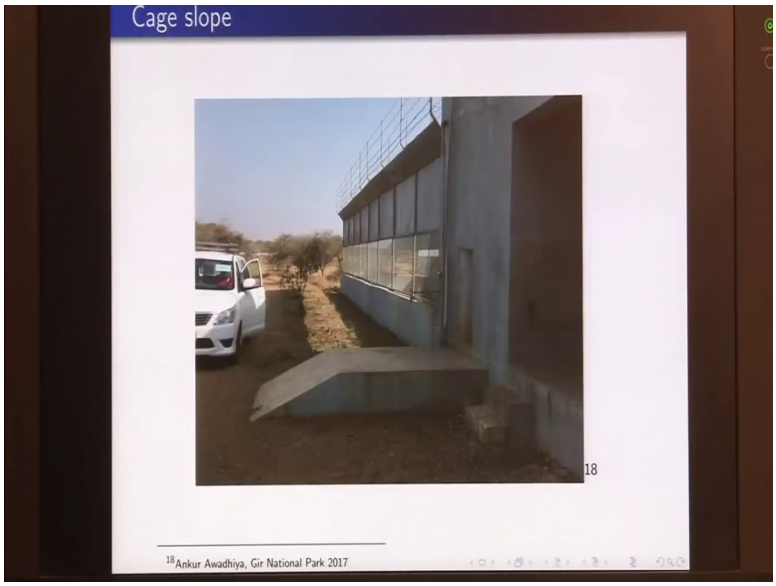

So, in this case we would put our cage here and would roll it up here to the top. Here we have a gate. Now this gate would be opened by somebody who is sitting on top of the building. And when this gate is opened and the gate of the trap is open the animal will move inside this facility and then it would be closed back again. So, this is another kind of cage that we use.

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In certain situations when the animal has not yet been transported, so, we can also put the annual into the cage for some time, but here it is essential to note that the animal will be

feeling quite a lot of stress in that area and might even try to attack anybody who comes near this case which might even lead to some amount of injury to the animal.

So, in this case when we were there in the Gir National Park we saw this leopard that was there kept here in the cage. Now as you can see there is a cloth kept on top. So, that in certain times this close can be used to cover the whole traps so the animal is deprived of the visual sensations.

But now because this animal is a wild animal let us see what it does if anybody goes near it. So, it is showing its teeth. So, it is trying to look very dangerous, it is trying to install fear or in still fear into whoever is coming close to it. So, whenever it has a look at the camera it tries to open its mouth. Now quick we maintained a large distance between the leopard and the camera because if we come close to this leopard if you come close to the cage then in place of just showing its teeth this leopard my try to pounce on us or on the camera.

So, when it does that it will hit on the walls of the cage and it will get certain amount of injuries. If it tries to bite us through the cage it might even lose some of its teeth when it gets entangled with the steel nodes of the trap or of the cage.

Now, there are certain kinds of cages that are used for transportation. And then there are certain other cages that are used for handling of the animal. Now one such cage was by the name of squeeze cage.

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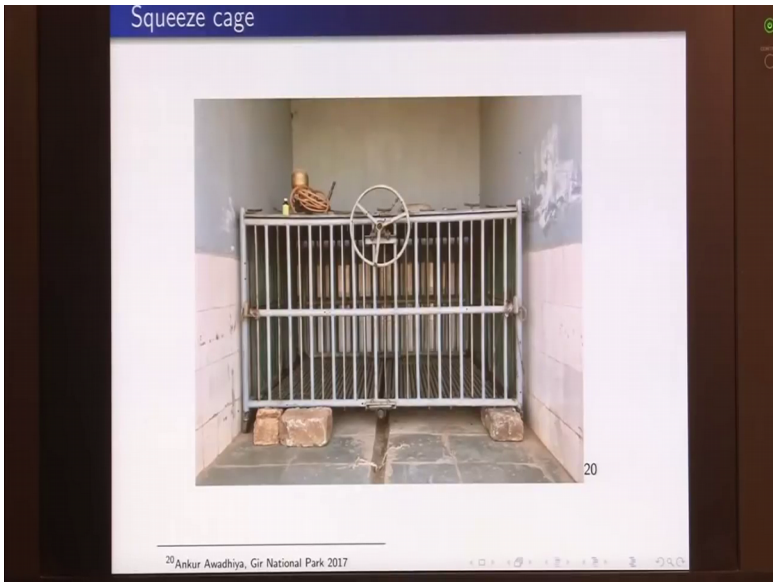

So, in this picture we see a squeeze cage. So, what do we have in this cage is that we have these two walls and then there is also a third wall in the centre. And this third wall can be moved by the operation of this wheel.

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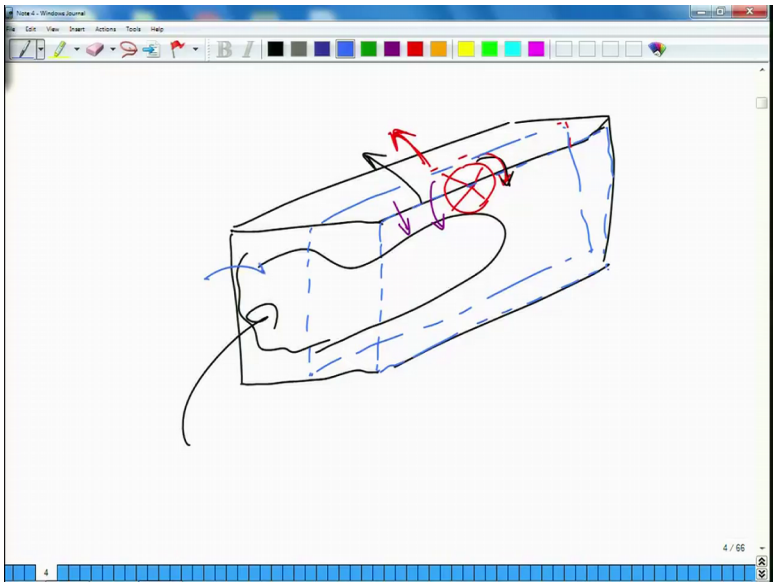

So, what happens in this case is that you have, so, if you are looking it from the other side. So, we have. So, this is our cage for a squeeze cage. And then we also have another wall that is here. Now this wall which is also made out of steel is moved by the operation of a wheel here.

So, when you are turning this wheel this wall will move to one side when you turn it in the other direction, let us use another colour. So, when you turn it in the other direction this wall will move to this side.

So, how do we use squeeze cage? So, when you are using this cage you would first put our cage to one end. So, let us say that our moving wall came very close to this end.

So, this is not the position or the wall now. The wall is at the blue position. Next we put the animal inside. So, the animal is now inside. So, let us say that this is the animal. Next we would turn our wheel to this side. So, that now our moving wall starts moving to that side. So, what would happen is that the animal would be pushed towards one end and then it is not just pushed to an end, but it is also squeezed by the wall. So, now, the wall is say somewhere here. So, the animal is right there at the very end at this end and it is also squeezed because there is a stationary wall and then there is a movable wall. And the animal is now squeezed like this.

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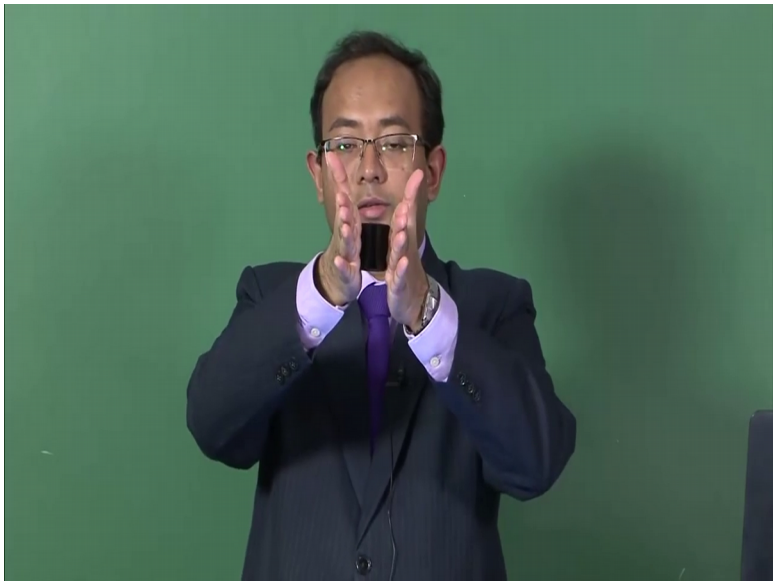

So, we had one stationary wall, one movable wall the movable wall went like this and its squeeze the animal.

So, now the animal is not able to move. So, now, this is a kind of a physical restraint or a mechanical restraint. And when the animal is in this position then it is very easy to take out a blood sample or to give it certain medications or say to puts a tag a pit tag into this

animal and things like that. So, squeeze cages are extremely effective especially for the large cats and we have been using a these squeeze cages for quite some time.

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So, this is a royal squeeze cage say it is royal heritage squeeze cage and this is something that we saw in the Mysore zoo. And this is nearly 100 years old. So, this is not a new technology, but this is something that is extremely effective when we are handling an animal.

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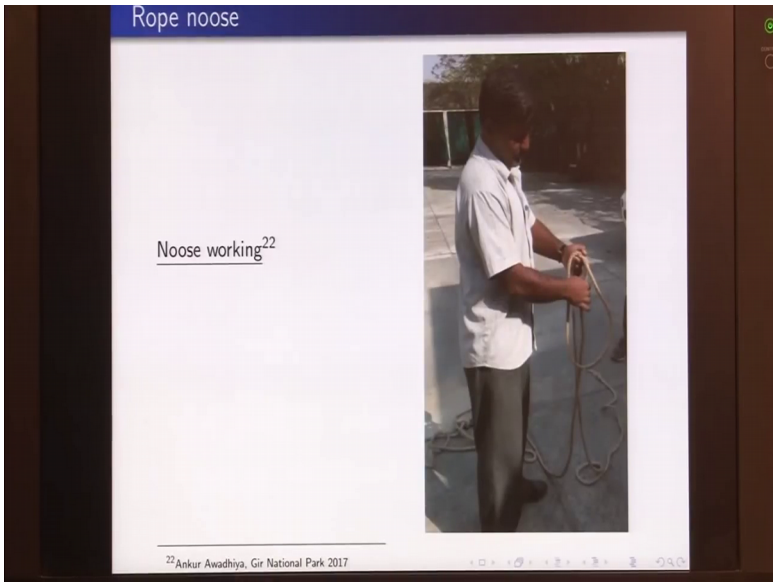

Another thing that we make use of very frequently is a Noose. So a noose is a rope that is used to capture an animal. So, here again in the Gir rescue centre we would observe the working of the noose. [FL].

So, we make use of nooses such as this when we have a situation in which say there is a leopard that has fallen into a well. So, now, this leopard if we may not able to find it out very quickly then this leopard has been there in the well for quite some time. It has been trying to get out. So, it has exhausted itself it does not have enough energy left inside. And also because it is drenched with water its body temperatures now going down. So, we call these situations is hypothermia. So, in these situations if you put a ladder, so, when we to take a leopard out of a well.

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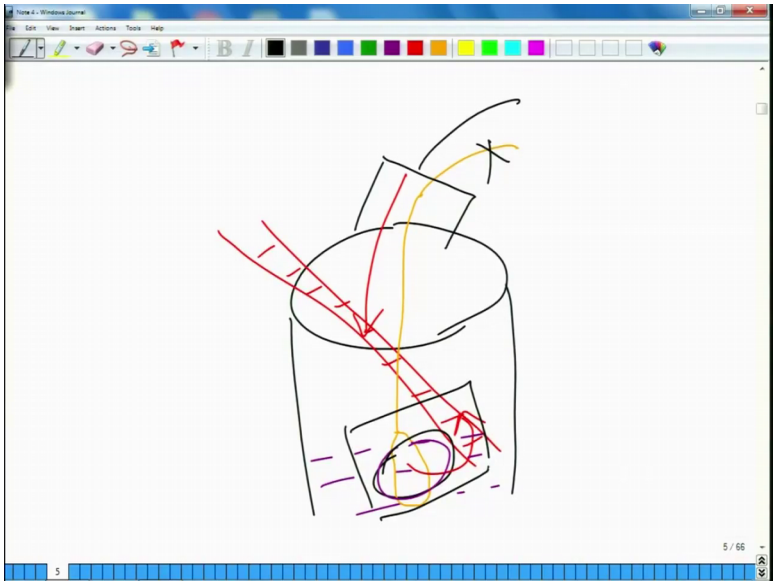

So, this is a well and there is a leopard inside. So, what you would do is you just slowly a lower a ladder made of bamboo into the well and this animal will then use this ladder to get out of the well by itself.

So, this is again as we saw before the least amount of restraint is the best amount of restraint. So, we try not to handle the animal as far as possible. So, if the animal is in a position in which it would be able to come out by itself we would just lower a ladder for the animal to come out. But then if this animal had been there in the well for quite some time and if there is water here, so, the animal has been trying to escape, but it has not been able to escape.

So, it has lost all of its energy. iIt is completely drenched with water. So, it is body temperature is now also reducing. So, it is suffering from hypothermia. Now in these circumstances even if we have put a ladder the animal might not be having enough amount of energy to come out by itself.

So, in those situations we can make use of as of an iron cage or maybe make use of a noose. In the case of noose what we would do is that people would stand at the end and would try to lower the noose in such a way that the abdomen of the animal comes within this noose.

So, then when you tighten this noose then the animal would be captured and then once that is done then from the very end of this rope you would put another open cage. So, there would be an open cage that would then be lowered. Now, when this cage comes down, so, here you have the cage now. The animal is already trapped and now this animal is inside the cage, you would close the doors, take the whole cage out then you would take this rope out. So, this rope would be removed and then this cage would be opened. So, that the animal is able to move out.

So, this is one common way in which we rescue leopards. So, the nooses the rope nooses become extremely crucial when we are using this on this method. So, let us have a look at this noose once again to see what kind of a knot as being used. [FL].

Now, it is important to note here that in this case this knot should be a knot in which any slight amount of force that is applied by the animal is sufficient to tighten the noose. So, which is why we go for this special kind of a knot here. [FL].

And then when we are we have slided this noose out of the animal when we have taken this animal out and we are slided this noose of the animal. We can just pull on this string and the noose would disappear by itself.

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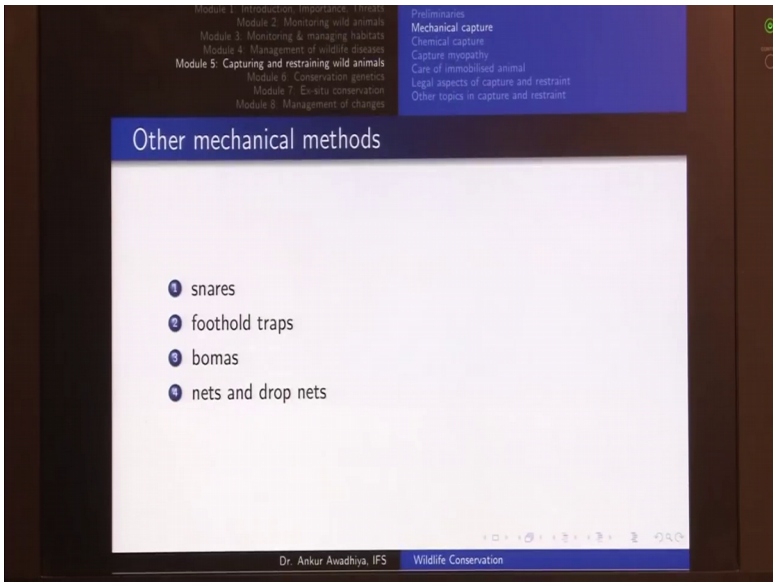

Now, apart from our pitfall traps the trip cages and the noose we also make use of other mechanical methods. So, these are things like the snares. Now snares are very similar to the nooses, but they might be made out of metal as well. So, these are also devices to trap the animals.

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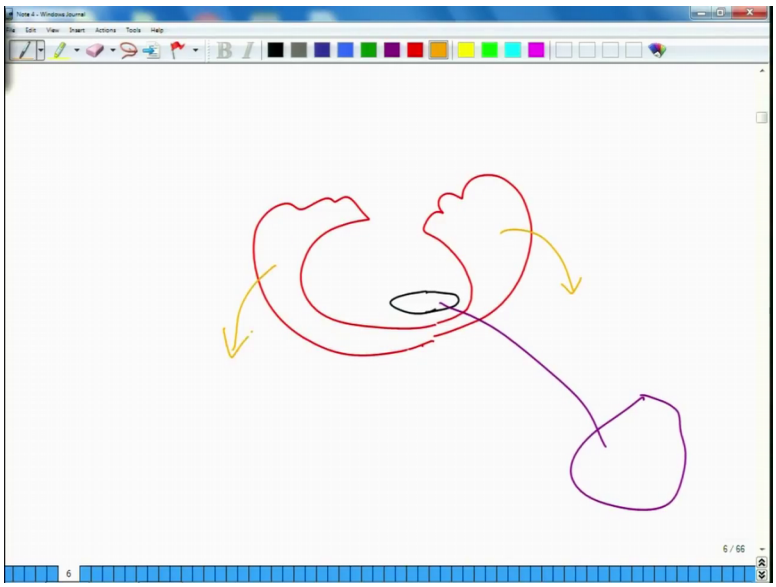

Foothold traps; now, in the case of a foothold trap we would be having release mechanism and then we would be having two claws. Now when this and then they would also be a rope that is attached to this which is then tied to a tree, it is put with the rock or

it may even be tie to a tree. So, that the animal is not able to take the food trap away with it.

So, when this trap is set up then both of these claws are move to the to these two extreme ends. So, it looks like this.

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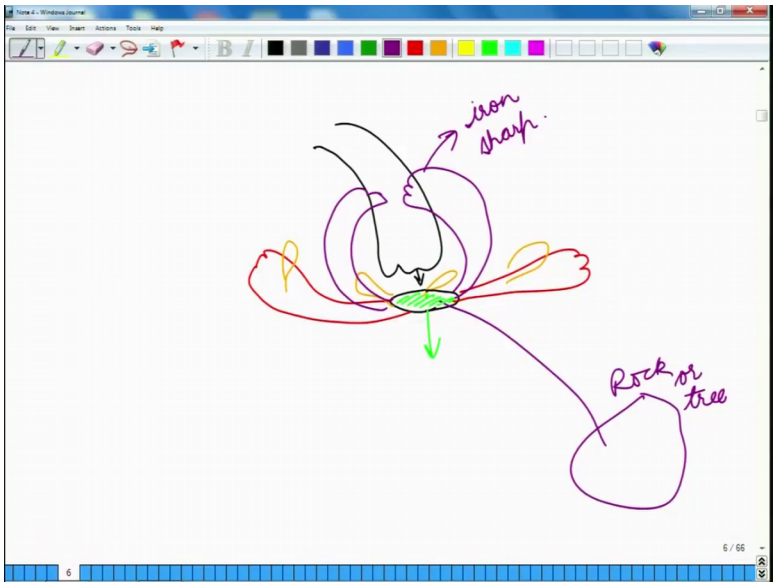

So, this is how the trap would be set up out there in the field. We might even put certain amount of leaf and other litter on top of this trap to conceal it. Now when an animal comes and puts its paw on top of this release mechanism, so, this is to say this green colour is our release mechanism.

So, when this portion is pressed by the animal downwards, so, it releases both of these claws together. So, these claws would then move to this position and the foot of the animal would be captured by the trap. Now because this trap is connected to a rock or a tree, so, now, the foot of the animal is connected with a spring or with a rope to a tree. So, the animal is not able to move away. So, this thing goes by the name of a foothold trap because it is only hold a one foot of the animal.

Now, in the case of the foothold traps that are used by poachers these ends are made of iron and are sharp because the poacher wants that even if this animal gets injured then too must not be able to run away.

So, they would be having very sharp claws and they would go like this. So, the animal would have a very great amount of injury in its foot. In the case of the foothold traps that are used in the case of management of these animals or for research purposes these ends are covered with rubber with rubberized material. So, that it holds this leg, but so, the animals not able to run away, but at the same time it does not injured the animal.

Next thing is bomas. Now boma is a term that comes from an African term. And we will look at it in greater detail in the next lecture, but essentially these are methods of capturing a large herd of animals.

So, essentially you create funnel like structures you drive the animals together, so the animals are captured together as a herd, but we will look at it in greater detail in next class in the(Refer Time: 30:06) class. Then the next thing is nets and drop nets. Now nets as we know are used to capture fishes, it is these are used to capture birds. And in the case of drop nets we have situations in which

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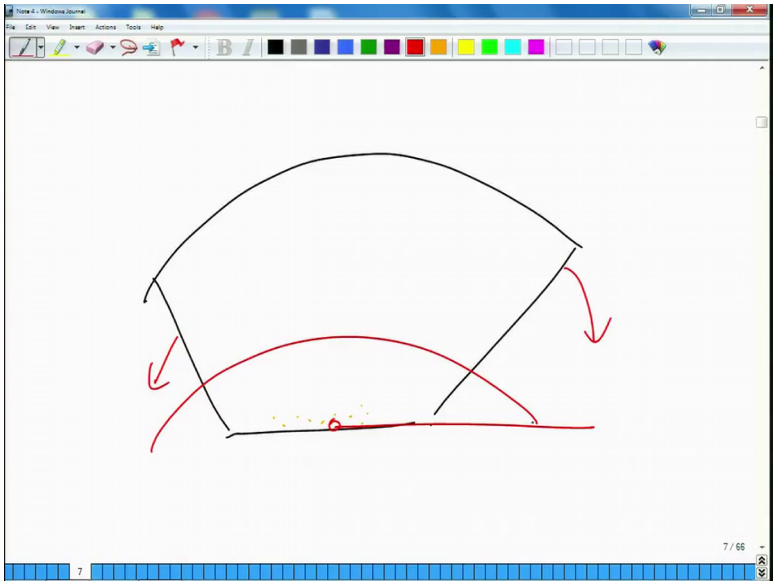

we have a net on the top and then this net has then connected together and then at this on the bottom stage we would put certain weight. And they would also be a release mechanism that is kept here.

So, as soon as this release mechanism is pressed by the animal these ends drop off and the whole net comes down to capture the animal. So, these are drop nets and then there

are also nets. So, we can have also other ways of mechanical capturing of animal, but these are the most common ones.

So, in this lecture we looked at one method pitfall trap in great detail. We also look at certain other kinds of mechanical methods of capturing animals. So, that is all for today.

Thank you for your attention [FL].