



►► Prof. Ing. Erich Václav, Dr.Sc. (*1930)

Forester, teacher and scientist recognized worldwide. Prof. Václav has been active in forestry over 68 years, beginning as a forest worker and ending as a university professor. During that time, he visited many countries on five continents. Nine years he worked in tropics, mostly on UN forest projects, and described his large experience from many years of practice in tropical countries in more than 20 books of which a majority was published by the Petrklíč Publishers.



►► Mgr. Jana Bezděková (*1967)

Jana Bezděková was born in 1967 in Prague where she studied at the gymnasium and then at the Teacher-Training College, first pedagogy and later pre-school education. She has devoted her professional life to pre-school children whom she works with until today as a nursery teacher, currently at Kindergarten Bajkalská in Prague. In 2012, she graduated from Charles University as Master of Arts in the field of Pre-School Education.



►► Hana Hradilová (*1966)

Hana Hradilová studied at Academic gymnasium Štěpánská in Prague and continued a follow-up study in the field of library science. More than 10 years she worked in the Municipal Library in Prague. At present, she works in a pharmacy in Prague. Hana Hradilová has devoted whole her life to drawing and painting, which are both her great hobbies.

Foreword

Dear readers,

We introduce you a publication by authors Erich Václav and Jana Bezděková, which has been issued thanks to the kind permission of the Petrklíč Publishers by Forest Management Institute Brandýs nad Labem on the occasion of Education Seminar for professionals within the preparation of events to be held in the Week of Forests (21 – 23 October, 2014 in Vílanec u Jihlavy).

Stories about forest told by the forester, traveller, doyen of tropical forestry in the last century, grandfather and grand-grandfather are enriched with a very good methodological concept. We are honoured to be able to contribute to raising civil society awareness and to address at the same time teachers of (not only) nursery schools. We believe that a common goal for all of us who are engaged in educating children and young people to sustainable development is to bring them back to landscape, forests, and nature. Parents, teachers or educators in after-school care centres, forest managers, forest educators, persons working in the centres of environmental education or in children houses, hobby group leaders, game managers or bee keepers, we all want to teach our children and young people to find positive experience and adventure in them and to show how the complex man-nature interactions can be understood and wisely judged.

We hope that this publication will be a significant stone in the mosaic of actions leading to the set-up goal – maybe a first step or a first caption and entrance ticket into the forest, a promise of adventure or an invitation to observe simple miracles occurring in the forest, namely for pre-school and primary school children.

At the same time, we would like to give this publication to forest pedagogues as a contribution to their further education. The book was drafted to help not only to foresters in explaining the significance of sustainable management of our forests for the community.

Zuzana Jankovská

Forest Management Institute



1. THE SEED OF A LARGE TREE

Seeds fell from a big tree with large cones of many chambers in which the seeds had dwelled as in a house. The seeds fell into dewy grass. Dewdrops wondered who the new visitors were. At once they began to ask where the seeds came from.

„We are the seeds that lived in the little cone house of a large tree the name of which is spruce. Now, we have flied in here to drink your dewdrops so that we can shoot roots towards the ground, and needles towards the sky. Being able to drink the dewdrops, we can start growing up and down, still needing more dewdrops and drops of rain falling from the sky. Growing up to a height, we shall take you with us, we shall grow along with you, dear dewdrops, and you will be able to look at our world, at our forest from a great height in order to have a nice view into the distance, which you could never have here in the moss.“

The dewdrops liked that and promised to come to the seeds tomorrow morning when the sun starts to shine so that they could have a fresh drink again and begin to grow to a height. So that they could see the lovely world and have a chat with their needles as well as with other plants around, which bloom so finely nearby. And also with small shrubs and other spruce trees growing there already from the previous times.

They all liked it in the forest, how they could all talk together, how they could all enjoy helping each other, how one could not be without the other.

Since the seeds of some trees have wings, they can fly like little airplanes - to a great height and distance. Some of them fall into the forest stream, which takes them like small boats into a larger river – and the river may take them even farther, maybe as far as to the sea. Streams carry many seeds of which some settle down on their banks to live there many years and to grow to a height.

The seeds enjoyed travelling along with the stream – after all, they could see faraway lands where they met seeds of other trees, which they did not even know.

Suggestions for working with children

Indoors

- The story tells about a stream. Do you know who lives in the stream? (crayfish, trout). Sing the song „Blue-eyed girl“ – who of the girls present here has blue eyes? Look carefully at your girlfriends. Who is water sprite? Try to use another word and to describe how he looks like, what he does etc.
- Do you know where dewdrops come from, why we have rain sometimes? – Discuss the water cycle in the open nature. You may use the book by Z. Miler „About a searching puppy“.
- Draw a dewdrop – how could it look like? (in the colours of the rainbow – reflection of the spectrum, cheerful, sad ...)
- Get familiar with the following speech rhyme: „Spadla šiška na Františka, počkej, šiško šiшатá! Budeš péci dobré věci, budou jako ze zlata.“ (A cone has fallen on Frank, just you wait you squiffy cone! You will have to bake all goodies; all like made of gold.) Clap your hands in the rhythm (training word decomposition) and seek a rhyme. What else can rhyme with the word „šiška“ (cone)? – liška (fox), myška (mouse)
- Prepare seemingly identical pictures to the theme, with 3 – 5 differences that children are to find. Arrange the pictures under (not beside) one another for simpler search.
- Describe riddles: choose a card with the picture and describe what you can see. Be careful not to spill the name.
- Do you know what blue colour in the map means? Look at the map of the Czech Republic and try to find watercourses.

Outdoors

- Do you remember what the seeds called a „cone house“? Take a cone in your hand, feel it, look at it carefully and try to describe it. Here, we develop sensory perception (eyesight and touch) as well as vocabulary (adjectives in particular).
- Where does the seed live? You can give it a name (developing imagination) and look at it under a magnifying glass. The same you can do with a dewdrop/water drop.
- The song „Little raindrops“ urges on using children musical instruments that we can replace with various sticks, stones or cones ... „Play“ a fine rain. How would a heavy rain (downpour) sound like?
- Experiment: sending cones down the stream – whether they sink, where they can be brought, how far they can reach.
- Play with the products of nature and assemble a mosaic of them – ship, cone or tree.
- Use cones to make animals – owl, mouse.
- Look around in the forest and find a spruce tree. Within a set-up time limit, find and bring various cones, which you will sort out with your friends into groups (e.g. by type or size).
- Who likes to eat cone seeds? Play a movement game Squirrels and Martens: Squirrel nest will be a circle made of cones into which children (squirrels) bring collected cones one by one. Two children (martens) break into the nest and throw the cones out from the nest one by one.



2. WHAT THE SPRUCE AND THE BEECH WERE TALKING ABOUT

In a high forest, a tall and slender spruce and a beech with the large, spreading crown were growing side by side. The trees introduced to each other first. The spruce said his name is Spruce, and when he was younger and smaller, they called him Spruce the Little. The beech said his name is Beech, and in his young days, he used to be called Beech the Little.

When the trees knew each other, the Beech asked: „How come that you do not have the same leaves as I have“. The Spruce explained that he has leaves too, and that they are green as well. „Only they look differently than your broad leaves, the shape of which resembles an egg“, said he. „My leaves are tiny needles and I have a lot of them on each twig. Other trees growing nearby have similar needles,“ continued the Spruce. „What are their names?“ asked the Beech. The Spruce named several: pine, larch, fir. The needles of each of them somewhat differ; pine needles are longer, harder and pricking while those of fir are larger but nice and soft.

The Beech replied: „Similar leaves as are mine have also other trees in our forest“. „Would you tell me their names?“ asked the Spruce. The Beech named at least five of them: oak, birch, maple, ash and alder. „Each of them has entirely different leaves though. Altogether, they are called broadleaved trees. Some of them have small leaves – for example birch; some of them have larger leaves – for example oak and maple, and ash has large leaves composed of multiple small leaflets arranged in two rows.“

When the trees explained everything to each other, the Spruce asked: „I have noticed that all your leaves fall down in winter and you remain naked.“ The Beech explained him that most broadleaved trees shed their leaves in autumn and only bare branches are left to them for the winter. „Fortunately, new young leaves will appear again every spring, and with them new flowers.“

The Spruce said: „Even we, coniferous trees, which are green all our life, have one of us shedding its needles in autumn. Its name is larch. Its beautifully green needles will turn yellow in autumn and later they will all fall to the ground. But we, spruce trees, keep our needles green even for the winter – similarly as fir and pine do.“

As the trees were talking nicely, it became suddenly dark. Before they went to sleep, they promised each other to talk about their flowers, seeds and fruits tomorrow.



Themes for working with children

Indoors

- Stick the leaves on a quarter of paper and create a picture or a leaf mosaic of your own (one leaf next to the other – for example according to colour or type).
- Make a small „spruce tree“ of your own from the twigs of conifers by sticking individual parts into a plasticine cone. Working with small articles develops fine motor skills.
- Together with the children, create an exhibition („small forest“) in the classroom from the collected natural items. Collaboration and respect to the opinions of others are of immense value for their future experience of life.
- Present your body as a „tree“. This yoga position leads to concentration and physical stability. Stand on one leg, the other leg's foot touches the knee from inside; arms are raised upwards, their palms touching.
- Improvement of graphical motor skills – draw a spiral in vertical position („movement of falling leaf“); draw a straight vertical line (stem) and slanting lines on the left and right (spruce branches).
- Play with words and improve your vocabulary with diminutives: branch-twig, leaf-leaflet, spruce tree-small spruce tree (sapling), beech tree-small beech tree (sapling), forest-small wood-grove ...
- Search for pictures in encyclopaedias and children books, and talk with the other children about trees and forest. How the trees look like in the autumn? Why the broadleaved trees shed their leaves? Why the trees are important for humans?

Outdoors

Pick up various leaves of broadleaved trees and twigs of coniferous trees while on the walk (in the garden) and play with them.

- Compare the size of leaves and sort them out into small and large ones.
- Arrange the leaves by size from the smallest to the largest and create a „train“ from them.
- Sort the leaves out according to their shape (type).
- View a leaf and a conifer twig under magnifying glass and survey their structure.



3. STORY ABOUT A BIG STUMP

Once upon a time, grandpa went with Lenny and Thomas for a walk in the forest to breathe some fresh air. As they wanted to go as far as the highest mountain in the surroundings of their cottage, they had to go up the hill all the time. When children became a bit tired, grandpa suggested having a rest and all of them sat on big stumps left in the forest after felled trees.

Sitting on a stump, older Thomas noticed there were rings on the stump. Lenny looked at her stump and found some rings there too. The two children asked their grandpa who was forester why the rings were there. Grandpa appreciated their questioning very much and began telling them a story about how the stump had come to those rings.

First, he said that the rings are called annual rings because when the tree grows up, a piece of wood is added every year, which is called annual ring. With the live tree, one cannot tell as the bark of trees is not transparent and one cannot see inside. Only when the tree is felled, the annual rings show clearly and even small children can count the annual rings and tell the tree age.

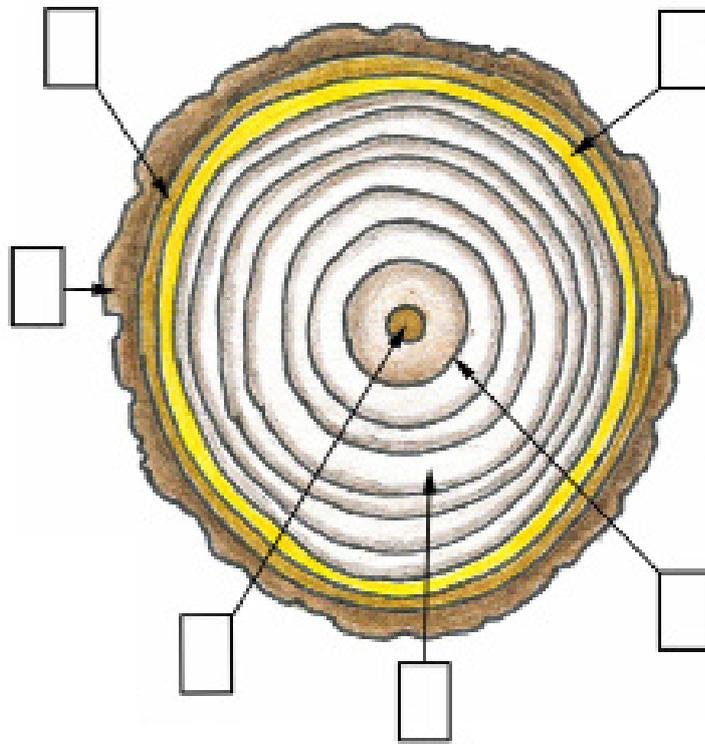
Because children could count only to ten as yet, they tried to find a small stump with only a few annual rings.

In the middle of one small stump was a small brown spot. Grandpa explained that it is a centre of the tree, which is called pith. Children started counting the rings towards the stump bark. The first ones were small but every other annual ring was larger and larger. Lenny counted eight annual rings on her small stump; Thomas counted even ten on his.

Then grandpa gave them a task to count the annual rings in the reverse order, from the bark towards the pith and to mark the annual rings with the same number as how many years old they are. Thomas marked the ring of number five with his pencil and Lenny marked the ring of number four. The grandpa explained them that the trees grew similarly as they did, the first annual ring having when they were one year old. The marked annual rings showed the tree diameters at the age of four and five years. In those years, the children grew up by several centimetres and the trees put on wood by several centimetres. Their height increment could not be told from the stumps. However, grandpa said that the four- and five-year height increase of their trees could be measured both in the forest and in the garden.

Then he added that the story would continue on the next walk because there were many things that could be explained from the stump. In fact, people could directly read from each stump the history of the tree.

When they came back home, grandpa promised children to explain how the trees grow up during the next walk - and he kept the promise.



Can you identify annual rings in the picture? Try to tell how old the tree is. Is it older or younger than your mates in the kindergarten are? Is it older or younger than your teacher is? Could you give correct names to individual layers of the stem?

HEARTWOOD – BAST – BARK – CAMBIUM – PITH - SAPWOOD

4. STORY ABOUT A BIG STUMP CONTINUED

Grandpa explained that annual rings show better in the coniferous trees. Each annual ring has the wood lighter in the spring and dark brown in the autumn, when the wood starts to thicken. Next spring, the newly growing wood is lighter and thinner again because it has to transport water from the ground up to the very treetop. Later in summer, the new wood is thicker and brownish again. The trees grow like this over and over, year after year.

In the broadleaved trees, annual rings are not distinct as in the conifers. Some tree species have them quite visible; they appear in the spring like small water pipes that can be seen with the naked eye. They are called pores, and the tree species with them are called ring-porous. Each annual ring has distinctly lighter wood with many pores arranged in a circle. The autumn mature wood is thicker and darker, without the pores. The group of ring-porous trees includes oak, ash, elm and also robinia.

Some broadleaved trees, which do not have the circularly arranged pores such as beech and maple have the annual rings distinct even without the pores. Other tree species such as for example birch have annual rings poorly distinguishable because they are almost of the same colour as their wood. This is why grandpa recommended the two children to start counting the annual rings in coniferous trees first. On bigger stumps, he counted the rings all by himself, in some perhaps up to a hundred years, which the children could not do yet – as we already know.

On a big stump, grandpa showed them the years when their mum and dad were born as well as the years when the grandma and he were born. They made six marks on that stump, and it was immediately known who was born when and by how many centimetres the tree put on since that time.

In addition, grandpa explained them why some annual rings are smaller and some larger. The smaller rings probably had less water and sunshine in the given year, the larger ones had more water and sunshine. Winter was perhaps short and the trees had not enough winter sleep; in summer and in autumn then they were growing longer for several months, and this is why they were thicker.

Concluding the story, grandpa gave children a good advise: „Before you sit on a stump, always look carefully on it. If it is a spruce or a pine stump, there may be resin and you will become stuck to it. However, a fir stump does not have the resin; you will not be stuck and your trousers will not be damaged. In any case, you have to learn to recognize the tree species, and that is a hard work...“

Finally, I have good news for you: broadleaved trees do not have the resin ducts. Nevertheless, you have to know what the stumps of broadleaves look like.

Themes for working with children

Indoors

- Identification of materials – wood (properties, colour, appearance). Development of visual, tactile and olfactory perception (survey, examine by touch and smell the fresh wood). Do you know what can be made of wood? Look around and find things made of wood.
- Choose from the offered items those that are made of wood (scissors, plastic bottle, wooden cube).
- What colour is natural wood? What else can be brown? Familiarization with the colour
- Motion game: „On the wood“ – a child is chasing others who can rescue themselves only by touching a wooden object.
- Do you remember the name of circles on the stump? Do you know the proper name of the brown spot in the centre of annual rings?
- In graphical motor skills try to draw the circles – annual rings – from the smallest to the largest one (from the centre to the margin) and fill the entire paper surface.
- Enrichment of vocabulary with adjectives – we use the given theme. What is the stump, what can you tell about it (small, brown, „ringed“); annual ring (thin, large, circular); children (good, attentive, eager to learn).
- Make a small folding picture book from a quarter – divide a strip of paper by folding it into thirds (quarters) and on each part draw a tree of the same species growing (from the smallest to the largest or you may draw a stump in the last picture).
- Familiarize with the numeral row from 1 to 10 and learn the succession of the numbers. Try to count annual rings on the stump (in the actual environment or in the picture).
- Listen to the relaxing music from the forest (CD) and get dreamy. Children are lying on their backs, relax and close their eyes (to concentrate on hearing only), listening to a subdued music. This is to train them imagination, develop fantasy, empathy, emotionality and the perception of themselves and of the surrounding world).
- Make a paper of your own, which you can use to wrap a small gift for your mother (for example a necklace from rowanberries, a picture drawn on a cut-out piece of branch – prepared by the adult person). Tear the used paper into small pieces and soak it in water (overnight) to let it dissolve. Crush it by mixer into slurry mass, which you spread over mesh grid and put on a piece of cardboard. To have the paper dry soon, drain it with a sponge and smooth it with a roller. The dry paper can be decorated.

Outdoors

- If you go walking in the forest or nearby a water stream, try to find some ferns and inspect them under magnifying glass. Some will have spore-sacs with the spores on them.
- Tag in the forest (on a clearing) – one child chases the other children who have to rescue themselves by climbing a stump (if played indoors, you may use circles instead of stumps)
- Rhyme with motion: pairs of children stand facing each other, holding their crossed arms and together saying: „Sawing, sawing timber, we won't freeze in winter...“
- Familiarize with the numeral row from 1 to 10 and learn the succession of the numbers. Try to count annual rings on the stump (in the actual environment or in the picture).
- In the forest (park, garden), compare and decide which tree is large and which is small - practicing judgement. Sort out the collected natural items into two groups – small and big.
- Pick up some natural items in the forest, which you will later wrap up into the self-produced paper as a gift for your mum.

Forest pedagogy in the Czech Republic

Forest pedagogy is in the Czech Republic since 1998 – when the first forest educators were trained in Austria, who adopted the Austrian model of forest pedagogy in the Czech Republic.

Forest pedagogy is executed in the Czech Republic by organizations dealing with the administration of forest properties, forest management or awareness raising on forests and forestry in civil society, and by forestry schools.

Working Group for Forest Pedagogy in the Czech Republic

The Ministry of Agriculture of the Czech Republic established the Working Group in 2007 to coordinate forest pedagogy in the country, to support cooperation of organizations at national events, to administer forest pedagogics websites, to prepare seminars for forest educators, to promote forest pedagogy etc.

Members of the Working Group are representatives of forest organizations dealing with forest pedagogy. Coordinator of the Working Group is Forest Management Institute, Czech Republic.

Forest Pedagogy Concept

The forest pedagogy concept was prepared by the Working Group for Forest Pedagogy in the Czech Republic in 2010. Since then, representatives of forest organizations sign an Action Plan to the Forest Pedagogy Concept at the forestry exhibition *Silva Regina* held every two years. By doing this, they demonstrate their support to forest pedagogy to confirm that working with the public, with children and young people on the topic of forestry and forest makes sense.





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