

The Lichen Scale – what is it ?

The Lichen Scale, we present is composed of a set of pictures representing various species of epiphytic algae and lichens. The said species have been selected with regard to their sensitivity to sulphur dioxide (SO₂) – a very harmful substance which is released by industry in ever growing quantities into the atmosphere, killing our forests. The pictures have been put in order of the pollution zones – areas in which lichens can grow at a given SO₂ concentration. The zones – from **0** to **7** – are determined by **max. concentration of SO₂** at which given species of lichens can grow (the higher the zone number – the lower SO₂ concentration). Using The Scale everyone can easily approximate how polluted his environment is. The Scale is meant to be used in middle Europe as useful tool for teachers, pupils and any person involved in environmental education (e. g. in schools and NGO's). The lichen species selected for this scale are characteristic for middle Europe.

Curious organisms

Lichens are curious organisms, because they are composed of two different but coexistent components: alga and fungus. Such symbiosis enables lichens to grow on bare rocks, trees, fences and even on walls of the houses. The fungus provides the alga with water and minerals nurturing and protecting them from drying. The alga, in turn, thanks to the photosynthetic abilities produce organic substances that are nutrients for both plants. The lichens may also uptake nutrients directly from the atmosphere, also those which are contained in dust and gases – thus absorbing poisonous substances, which are accumulated in the thallus. The ability to accumulate atmospheric poisons makes the lichens very convenient organisms which show the level of air pollution (biomonitoring), because for their growth they don't need soil and may live on rain water.

Lichen zones

ZONE



– The first is zone 0 called „lichen desert”. No alga or lichens can be found here. Sulphur dioxide concentration in this zone is higher than 170 µg/m³.

ZONE



– In zone 1 one can find only algae (eg. Desmoccus) that are much more SO₂ resistant than lichens.

ZONES



– At lower SO₂ concentrations the most pollution resistant crustace lichens (as Lecanora) and powdery (as Lepraria) start to occur. Zone 2 and 3 are so called „fight zones” – fight for survival in polluted environment.

ZONES



– In zones 4 and 5 leafy lichens (eg. Hypogymnia, Parmelia) and alga (Desmoccus) may grow.

ZONES



– In the areas of lowest sulphur dioxide concentration – in zones 6 and 7 also bushy lichens (eg. Evernia) may occur. They are the least pollution resistant species. The most sensitive ones and the rarest to be found are lichens of zone 7 – various species of bushy lichen (Usnea).

