

## PROPOSALS TO AMEND THE LEGAL FRAMEWORK FOR FELLING IN INHABITED AREAS

**Renáta Zákányiné Mészáros** 

senior research fellow, University of Miskolc, Research Institute of Applied Earth Sciences,  
Chamber of Engineers of Borsod-Abaúj-Zemplén County Work Safety Group Chairman  
3515 Miskolc, Miskolc-Egyetemváros, e-mail: [afkzmr@uni-miskolc.hu](mailto:afkzmr@uni-miskolc.hu)

**Attila Bereczky** 

Sole proprietorship  
3717 Alsódobsza, Rákóczi street 69. e-mail: [bereczky78@gmail.com](mailto:bereczky78@gmail.com)

**Balázs Zákányi** 

associate professor, University of Miskolc  
Faculty of Earth and Sciences, Institute of Environmental Management  
3515 Miskolc, Miskolc-Egyetemváros, e-mail: [hgzb@uni-miskolc.hu](mailto:hgzb@uni-miskolc.hu)

### **Abstract**

More than 30 years ago, Decree 15/1989 (X. 8.) on the issue of the Forest Safety Regulations (hereinafter referred to as the "FSR") was issued. This is the result of the amendments to the Labour Safety Regulations - MT 64/1980 (XII. 29.), MT 18/1984 (III. 31.), MT 12/1985 (III. 14.), MT 4/1987 (II. 9.) and MT 63/1989 (VI. 30. MT, as amended by Decree No 47/1979 (XI. 30.) MT, was established in consultation with the ministers concerned, the Head of the National Labour Inspectorate, the National Council of Producers' Cooperatives and the trade unions concerned. This regulation mainly concerns logging in forests and only one chapter deals with logging in inhabited areas, which is currently an activity subject to examination. Many years have passed since then, but only minor amendments have been made. Our work aims to supplement the EWC, make suggestions, and draw attention to the need to prevent accidents because working without complying with the current rules can either make it impossible to work or can lead to serious accidents.

**Keywords:** inhabited area, tree felling, amendment of legislation

### **1. Introduction**

At present, Decree 15/1989 (X. 8.) of the Ministry of Forestry and Environment on the issuance of the Forest Safety Regulations (hereinafter referred to as the "FSR") deals only with felling (forestry and inhabited areas). No other regulation currently applies to felling in inhabited areas, although it used to in 1989. Since the change of regime, much has changed in our rapidly evolving world. You don't have to think of big things, just the telephone, for example, the current smartphone was unimaginable; if you wanted to phone somewhere, you had to go to the booth next to the post office, where, after a long wiggle, the operator would connect you with distant relatives. That's when the FSR was written, and since then a lot has changed, from work safety equipment, personal protective equipment, tools, and everything. It was unimaginable to achieve today's lightweight quick-release, rip-lock, carbon-fiber

climbing equipment, because they didn't exist, even in America. Anyone who had a climbing tool was a big deal, everyone had it made to some pattern in a blacksmith shop. These were extremely difficult and awkward tools. Also, there were no modern, multi-point harnesses. Those who insured themselves got an extremely heavy waist belt with a hemp tie from an acquaintance at the electricity company, which was either impossible or difficult to position.

The rules were also written for these then available devices, such as the rope ladder, which is now completely out of use and is not even allowed for safety reasons.

Many years have passed since then, and although it has undergone minor changes, the rules have remained. Our work aims to supplement it, make suggestions, and possibly draw attention to it by sending it to the right place. To draw attention to the need to prevent accidents, because working without complying with the current rules can either make it impossible to work or lead to serious accidents.

## **2. Review of forest safety rules, comments, and suggestions**

Based on the experience of more than two decades and the information gathered, it is well known in professional circles that the current Forest Safety Regulation on logging in populated areas is outdated, does not keep up with modern requirements, and does not describe the possibilities of using modern equipment. It is currently the only legislation that a logger in an inhabited area needs to know. In my own opinion and that of my colleagues in the profession, this knowledge is very limited, and even the application of certain chapters can be dangerous.

Based on the experience gained in recent years, we make proposals for amending and reconsidering the Forest Safety Code. For the sake of clarity, the current chapters of the FSR are written in italics, our comments are written in normal, upright type, and at the end, we make suggestions as to which chapters should be added to the already limited scope of the Regulation.

The Forest Safety Regulation consists of 5 chapters, the content of which is as follows:

- General requirements;
- Safety requirements for forestry work;
- Safety requirements for logging operations outside forests and other populated areas;
- Safety requirements for logging operations in residential areas;
- Safety requirements for forest timber handling and stockpiling.

Although it was written just as long ago, and the other chapters have shortcomings, in this work we only discuss the safety requirements for logging operations in inhabited areas.

## **3. Forest Safety Regulation Chapter 4: Safety requirements for logging operations in residential areas**

"From 1 January 1991, logging in inhabited areas may only be carried out by a skilled logger with at least 2 years' professional experience who has passed the "Logging in inhabited areas" course before an official examination board. This qualification must be included in the agricultural and forestry machine operator's license."

According to the interpretation of the regulation, 2 years after passing the logging exam, anyone who has passed the "logging in inhabited areas" course can carry out logging in inhabited areas, no further training or knowledge is required, and even no proof of professional experience is necessary, it is enough to "wait" for 2 years, for example, as a cook or sitting at home unemployed.

A prerequisite would be proof of 2 years' experience in chainsaw work. A lot of people are qualified as chainsaw operators or loggers, and unfortunately more than half of them do not even know how to operate a saw properly. Unfortunately, this can also be circumvented, as such a document can be obtained from any company.

Most of the time, we use rope techniques or mobile scaffolding for felling in populated areas. In any case, an addition requiring full knowledge of rope techniques would be necessary, i.e. the worker should also be required to have completed a course in industrial mountaineering or rope techniques for tree care.

Since in some cases, the use of a mobile scaffolding is closely linked to tree care and tree felling, whoever works with a mobile scaffolding should be required to have a license to operate a mobile scaffolding in the relevant category. At present, it is legally sufficient for the person who "operates" the machine, i.e. one person who is there.

*4.1 The maintenance of utility service lines (e.g. overhead power and telecommunication lines) by employees of the service company, involving the felling of trees, shall not be considered as residential tree felling.*

We would also make it compulsory to have both a qualification as a logger in a populated area and a qualification as a mobile scaffold operator to carry out this work. In addition, we would also require a tree care qualification or the supervision of a tree care technician or tree care engineer to carry out the work. Unfortunately, when such work is carried out, only the protective clearances required by the gaps are looked at, not the health and aesthetic value of the wood. The task can be carried out almost exclusively with a lifting basket; using rope techniques is a pointless waste of manpower and energy.

*4.2 \* Only men over 18 years of age and under 50 years of age who have passed a preliminary and periodic medical examination of their fitness for work at height may carry out the felling and cutting of standing trees directly from a tree or ladder.*

According to the interpretation of the rules, men over 50 years of age are not allowed to work. So what should a man who has put everything he has into this, who has made a living out of it, work, so when he stops his business, where should he go to work? In the case where they put the age limit in the regulations, then they should make a decision or limit the age of those who do this work based on a physical examination.

Furthermore, if a woman is allowed to work both as an industrial alpinist and as a logger, why not the two together? A preliminary and periodic medical examination is essential. There are several references in the Forestry Safety Code to the fact that certain work can be done by men. It would be worth revising this as well, as women of both sexes can take the logging and the residential area logging examinations.

*4.3 The limbing and felling of standing trees may be carried out outside the growing season after the leaves have fallen. Exceptions are made for cases where the damage caused by summer storms makes it necessary to work during the growing season for the safety of life and property. Pine trees may be limbed and cut down during the growing season.*

In addition, it is recommended to pay special attention to protected and specially protected birds nesting in trees during the breeding season and to roosting bats outside the growing season. In case of encountering them, please contact the local National Park Authority or animal rescue NGOs. It is a good idea for the woodcutter or tree-cutter to have at least a basic knowledge of protected and non-protected species. It is a valuable result if you do not leave them alone but call for help (Bereczky, 2019).

4.4 \* *Twigging and chipping in the crown of the tree may only be carried out with a hand saw or a so-called one-handed chainsaw. Chainsaws may be used for climbing and chipping from a position independent of the tree (e.g. from a hydraulic mobile scaffolding).*

If feasible, the regulation is appropriate from a health and safety point of view, as the safest way to cut wood is from a mobile scaffolding. On the other hand, there are many cases where it is not possible to work from a position independent of the tree because the tree is so built-up that it cannot be reached by the machine. In addition, there are many large trees, which can be removed by the largest saw available on the market, but which are impossible to cut down with a hand saw or a small power saw. The term "single-handed power saw" is also a misnomer for wood-care saws. Although it is designed to be operated with one hand and is therefore extremely dangerous, it should be avoided if at all possible and should be held with two hands as a rule (Figure 1).

Before starting work, a stable working position should be established, with clear communication to the whole team (visual and acoustic). Before starting cutting, the tree worker should check the free-felling area. The chainsaw must comply with safety regulations and be in perfect working order. Start up only with the chain brake activated, release the chain brake only before cutting and reapply it immediately afterward.



**Figure 1.** *Improper and safe use of a woodcare saw (Hutter, 2018)*

4.5 \* *Only a fully intact rope ladder may be used to ascend to the crown. The technical condition of these, with a load capacity of at least 225 kg, must be checked at each new workplace after delivery. A logbook must be kept for inspection. Damaged equipment and equipment which does not meet the requirements for other reasons must be removed from the work. Access to the crown may be by a combination of a safety belt\* and a climbing iron\*.*

Rope ladders are practically unavailable commercially, and even if they are available, they must not meet health and safety standards. It is extremely dangerous to use because if it breaks, there is nothing to protect the person on the rope ladder. A load capacity of 225 kg is not enough; the load capacity of ropes currently used in alpine climbing is at least 15 kN, which is 1500 kg per kilogram! At this point, the requirements for the use of the equipment and personal protective equipment for alpine technology are listed in Article 12 of Decree 11/2003 (IX. 12.) of the Ministry of Agriculture and Forestry on the safety regulations for industrial alpine technology activities should be applied. In recent years, the market offer of companies selling industrial alpine equipment has been expanded to include descending and ascending equipment, slings, and carabiners specifically designed for tree care.

In conclusion, the use of rope ladders should not be allowed for climbing to the crown, given the means currently available. The designation of "safety harness" should, at a minimum, be an industrial alpine-tested, 3-point body harness with a wire rope work positioner and a tested climbing harness. If the tree is not being felled but is being limbed or trimmed, the use of a climbing iron should be avoided

as it can cause surface damage and infection to the tree. Ladders can be used to climb up into the tree canopy with appropriate anchoring.

*4.6 The person responsible for the inspection of equipment, the method, and the frequency of the inspection, broken down by equipment, shall be specified in the employer's regulations.*

No objection to this paragraph, the periodic mandatory inspection of personal protective equipment, ropes, and carabiners used in industrial alpine work should be kept in mind! The relevant standards must be explained and studied. These should be listed at the end of the regulations.

*4.7 The lower stems of a single-branch ladder shall be provided with a pointed iron harness to prevent slipping, and the upper ends with iron clamps for gripping, a strap or harness which can be attached to the tree branch or trunk.*

*4.8 The ladder shall be supported only by a part of the trunk free of branches and stumps.*

*4.9 At least one person shall secure the ladder at the bottom against tipping and slipping until the single ladder is tied down.*

After setting up the ladder, make sure that it is correctly adjusted and that the measuring angle is correct (65-75).

Most accidents happen while working from a ladder. There are many such videos on social media channels on the internet. One classic example is when the branch is being cut, the branch tip reaches down early and then slams back into the ladder, the ladder slips out from under the worker or falls with him.

The other most common accident is when working leaning against a side branch. The end of the branch is cut off, thus relieving the remaining branch, which may rise by several 10 cm or even 0.5-1 m. The support is then removed and the ladder falls.

Working from a ladder is therefore extremely dangerous. In our opinion, it should only be allowed to assist access to the canopy. We recommend the use of an easily assembled mobile scaffolding, as opposed to a ladder, for climbing a shrub or other shrub row. Of course, if conditions permit, working from a mobile scaffolding is always best.

*4.10. The person carrying out the work may only step on the branches of the tree if he has first checked their load-bearing capacity. Do not step on dry, rotten branches, they must be cut off and not left as supports.*

The worker must attach his tools to the safety harness before climbing and to a suitable branch after reaching the top.

A separate saw or tool holder that can be attached to the body harness has been around for a long time. In addition, a tool holder strap that releases under a certain load would be necessary. In many cases, if the saw is not pulled out of the wood after the felling operation, it can get stuck in the cap.

*4.11. Do not stay under the tree once work has started in the crown.*

Only people carrying out work should be allowed in the vicinity of the tree, taking extra precautions. If branches and trunks are being cut without securing a working harness, no one should be allowed under the tree! Attention must be paid to the risk of splintering, especially of the trunk and other parts of the stump, especially if it is bounced on the tree, which may be several meters away from the trajectory.

The same applies to a falling log, which can bounce on hard ground, roots, or concrete. In all cases, if feasible, embed cut branches under the tree. Position the workline operator to count the trajectory of the caught tree each time in case the workline breaks or falls out of the sling.

In any case, the insurance man and the person working in the canopy should also make sure that the trunk or branch secured with a rope is actually tied up. Clear signals should be given to each other before

each cut. No person other than the person carrying out the work may be present in the vicinity of the tree (within a radius equal to the height of the tree).

*4.12. The felling and cutting of standing trees must be carried out only in weather and lighting conditions that allow safe working: the level of lighting and fog must not obstruct the view - including details - to the top of the tree being worked on; the trunk and branches of the tree must not be slippery due to precipitation (rain, sleet, snow) and grit; the temperature must be above -3°C; there must be calm; there must be no thunderstorms with lightning.*

We distinguish between biotic, abiotic, and climatic factors that make work difficult.

Abiotic factors:

- Noise: cars on busy roads;
- Noise from machinery (excavators, machines, etc.);
- All this makes communication in the team difficult;
- Power lines, overhead lines, buildings.

Biotic factors:

- Allergic plants dangerous to health;
- Plants causing severe burns, blisters, and stings on contact;
- Insects with strong venom, wasps;
- Reptiles: most of them are harmless and should not be poisonous when they bite, they can settle in trees causing fear.

Climatic factors:

- Heat: dehydration, collapse;
- Ozone;
- Cold;
- Humidity, mist, fog;
- Wind;
- Thunderstorms.

*4.13. Only one person may work in the tree crown at a time.*

Although there are cases where the size of the tree would allow more than one person to work on it, I would not allow this for safety reasons. If the person doing the work is using only rope techniques, the tree can have one person in the crown, or a maximum of 2 people (the person doing the work and an assistant or machine operator) in the scaffolding if using mobile scaffolding.

*4.14. In case of danger to overhead power lines, work may only be started if the operator of the power line has de-energized the line for the duration of the work, at the request of the forest owner or manager.*

The owner of the forest is to be repaired by the owner of the tree. It would also be necessary to specify safe distances. Consideration should be given to the "Technical Safety Requirements for Electric Power Plants" enacted by GM Decree 8/2001 (III. 30.), NGM Decree 2/2013 (I. 22.) on the safety zones for electric power plants and for generating, private and direct lines. A significant number of electrical accidents occur due to the hazards of overhead lines, especially in the range between 1 kV and 30 kV, which are usually located in trees or on concrete poles at relatively low heights. Trams, trains, and trolleybuses also carry dangerously high voltages.

When working near overhead lines, the following precautions must be observed to prevent:

- Before starting work, contact the operator of the network concerned and take the necessary measures (de-energizing) if necessary.

- Maintain safety clearance for undercurrent lines. In this case, the operator should also be consulted and preferably present during the work. Safety clearance should be taken into account:
  - wire deflection,
  - the swinging of a tree,
  - the length of the tools.

Safety zones:

- 0,5 m: 1 kV,
- From 1,5 m: up to 30 kV,
- From 2 m: up to 110 kV,
- From 3 m: up to 220 kV,
- From 4 m: up to 380 kV.

4.15. *Prior to tree felling, legal felling, and cutting of standing trees in residential areas, the sequence of activities must be planned in advance and the tasks must be clearly allocated among the participants in the work.*

4.16. *The danger zone must be defined depending on the subject of the work, the equipment, and the technology used.*

4.17. *Before starting work, ensure that no one other than the person carrying out the work is present in the danger zone (e.g. in a house, weekend house, garden).*

Experience confirms that no one should be in the danger zone. If the area at risk is a public area, work can only start after the competent authorities (e.g. local authority notary, traffic police) have granted permission and closed the public area to traffic.

In addition to blocking off the area (e.g. temporary barrier, ribbon barrier for roads or pavements), clearly visible warning signs should be posted with the following text: 'Logging hazard area, no trespassing'.

When working in a residential area, especially if the work is carried out in a public area, the work area must be closed, secured, and marked before the work starts. The closed area must extend beyond the tree drainage area (Figure 2). This should be done with tape, posts, warning signs, and cones. In private areas, it is also advisable to tape around the area. If work is interrupted, the area should only be made passable if it does not pose any danger to passers-by.



**Figure 2.** *Correct closure of the workspace (Hutter, 2018)*

Working on trees is a potential hazard for pedestrians and drivers, so they need to be watched carefully. As it is a spectacular activity, many people stop to look and take an interest. Most people like

what we do, others don't like what we do. Some people are comfortable in a sea of concrete, cutting down every tree, and there are the extreme greens who would chain themselves to the most life-threatening tree.

It is our responsibility to ensure that the work area is for the use of those carrying out the work and is not accessible to unauthorized persons.

Public land and private land of neighboring properties may only be used after a prior agreement, and we are obliged to inform the land manager before starting the work.

The fall zone is the part of the danger area into which the cut parts of the tree fall, no one can stay there, the size of this area depends on the type of work, the height of the working position, terrain conditions, condition of the tree and weather and wind conditions.

In a busy area next to a road, 2 people are required to be present at all times to stop traffic when necessary when a tree is being dropped or lowered or decided on. It is also necessary to put up "caution felling" signs in both directions at a distance of 100 meters in front of the work area and to put up a 30 km speed limit sign to slow down traffic. Along the main road, it is necessary to consult with and obtain the agreement of the road manager.

#### **4. Proposals to be completed**

So far, the chapters in the Forest Safety Code have been completed. The following are suggestions for rules to be observed, which are essential for professionals or students working in the field, at least at a basic level. More in-depth information is not included, since if you want to make a living from it, you must not only complete a course in logging in a populated area but also at least a basic course in industrial alpine logging, where you can acquire more in-depth knowledge.

Logging is one of the most dangerous jobs in the world. Working at height is also one of them. And the combination of the two is extremely dangerous. We believe that the safety regulations for such an occupation should not be "written down" in 3 pages.

Many people start felling trees with special tools after completing the course. This is why we think it is important to expand the regulations, as the tools available have also improved a lot in recent years. It is also important to know the species of trees, as each tree has different properties, load-bearing capacity, and statics.

We need to be aware of the wood bugs and be prepared for the hidden dangers. These should be disclosed at a basic level, and those who are not experienced should always seek the advice of a qualified tree inspector before felling.

For those who carry out felling in populated areas, it would be useful to compile knowledge material and supplement the EWC, covering the following topics:

- Measuring the wood, wood defects;
- Basic knowledge of protected and non-protected species
- Hazards and emergencies when working in trees;
- Rope installation;
- Protection of vulnerable objects, public spaces, and garden equipment;
- First aid, rescue;
- Other requirements (e.g. correct securing when climbing trees, holding a falling load with a work harness, showing correct and incorrect work positions, knowledge of fall factor, descent, etc.).



## 5. Summary

Our work aims to correct outdated and incomplete parts of the Forestry Safety Regulations (FSR) and to add proposals.

The practical experience of the past more than 2 decades, the experience of occupational safety and health, has highlighted a new chapter. The shortcomings of the FSR need to be put right, a regulation of practice needs to be created that meets the requirements of the times, from which students in our country, or professionals who are already experienced and preparing for examinations, can draw theoretical knowledge and teaching material. Of course, there may be some gaps in the subject matter, but we have focused on practicality in our work. This, together with the case studies of accidents, has led us to put forward suggestions for incorporation into the FSR.

The discussion of the FSR currently available is no more than 1.5 pages long. In the full paper prepared by the authors (Bereczky, 2022), only the proposals to be added (and not modified) (full paper with figures) exceed 16 pages. The amendments also exceed 11 pages. Only 3 of the 17 subchapters of Chapter 4 in the FSC remained to be added. In addition, several proposals for additions have been made.

A new code of practice should be considered, with the participation of occupational safety specialists, foresters, tree care workers, and representatives of industrial alpine technology. They would take into account the requirements of the times, as well as the available tools, work safety, and nature conservation restrictions.

## References

- [1] Decree 15/1989 (X. 8.) of the Ministry of Forestry on the issue of the Forestry Safety Regulations
- [2] Bereczky, A. (2019). *Protected vertebrate species most frequently encountered during tree care and felling in inhabited areas and their conservation options*. Thesis. Szent István University, Faculty of Horticulture. Budapest, 2019.
- [3] Hutter, F. (2018). Working on trees. Safety information on guiding forces. *Mplus safety compact*. Vienna, pp. 1-27.
- [4] Bereczky, A. (2022). *Javaslatok a lakott területi fakitermelésre vonatkozó Erdészeti Biztonsági Szabályzat megújítására*. Szakdolgozat, Miskolci Egyetem.