TRAFIKVERKET

# Better Safety on Quad Bikes

## Joint strategy version 1.0 for the years 2014-2020

ARBETSMILJÖVERKET

ATV LEVERANTÖRERNAS FÖRENING

LANTBRUKARNAS RIKSFÖRBUND

ATV SWEDEN

DEALER

Rikspolisstyrelsen

Konsumentverket · KO

Svenska ATV Föreningen

Säker Skog

SLU

STHR
Sveriges Terräng Hjulingsutbildares Riksorganisation

LANTBRUKETS ARBETSMILJÖKOMMITTÉ LAMK

Trafik försäkrings föreningen

TRANSPORT STYRELSEN

TRAFIKVERKET

| | |
|---|---|
| Title: | Better Safety on Quad Bikes<br>Joint strategy version 1.0 for the years 2014-2020 |
| Publication number: | 2013:153 |
| Date of issue: | 2013-12 |
| Publisher: | The Swedish Transport Administration |
| Contact person: | Jörgen Persson, the Swedish Transport Administration, jorgen.persson@trafikverket.se |
| Photo: | ALF, the Swedish Transport Administration, Svenska ATV föreningen, Mostphotos, Renault |
| Layout: | The Swedish Transport Administration |
| ISBN Number: | 978-91-7467-545-0 |

# Foreword

Interest in quad bikes is on the increase and as a result of this, so is the number of fatalities and injuries relating to quad bike usage.
Quad bikes are a relatively new feature in the transport system, even if they have been used to a limited extent in agriculture, forestry and in the power industry since the mid 1980s. We need therefore to improve our knowledge and understanding of quad bikes within the transport system, and as a new feature in our traffic safety work.
Those who ride on quad bikes are normally unprotected motorists, i.e., the vehicle has no protective outer shell. There are huge consequences for motorcyclists during an accident, even at low speeds. It is therefore important that we work both to prevent accidents and to reduce the risk of injury should an accident occur.
This first joint national strategy has been developed in cooperation with several important actors. The strategy constitutes an important tool with which to plan, coordinate and develop operations to improve the safety of quad bike users.

December 2013

Per Johansson
ALF ATV- Leverantörernas Förening

Lars Harlin
Dealy Sweden AB

Dag Abelsson
STHR (Sveriges terrängutbildares riksförbund)

Arne Heimdahl
Svenska ATV föreningen

Bernt Nilsson
The Swedish Work Environment Authority

Tomas Gullberg
Säker skog

Micke Anderzon
ATV Sweden

Gabriella Fenger Krog
The Swedish Consumer Agency

Anders Danielson
LRF – The Federation of Swedish Farmers

Lena Tysk
RPS – The National Police Board

Mats Olausson
TFF – The Swedish Motor Insurers

Stig Brahn
The Swedish Transport Agency

Peter Lundqvist
SLU – the Swedish University of Agricultural Sciences, Alnarp

Tomas Nordfjell
SLU, Faculty of Forest Science, Umeå

Erik Norrgård
The Swedish Transport Administration

# Better Safety on Quad Bikes

## Joint strategy version 1.0 for the years 2014-2020

- **Cooperation between important actors who can and want to get involved**
- **Main focus**
  - » Safety both on and off the road
  - » ATVs
  - » Quadricycles
  - » Quad bikes registered as tractors (with a service weight of up to 600 kg)
  - » Unregistered quad bikes
- **Prioritised operational areas**
  - » Information
  - » Personal protective gear
  - » eCall
  - » Safety systems
  - » Speed
  - » Training
- **Systematic monitoring and constant improvements**
  - » The need for research and innovation
  - » Annual reconciliation of the stakeholders' measures
  - » Regular development of the strategy, based on new knowledge and measures taken

# Contents



# Appendices

# What is a quad bike?

**"Quad bike" is a broad, collective term for many different types of vehicle**

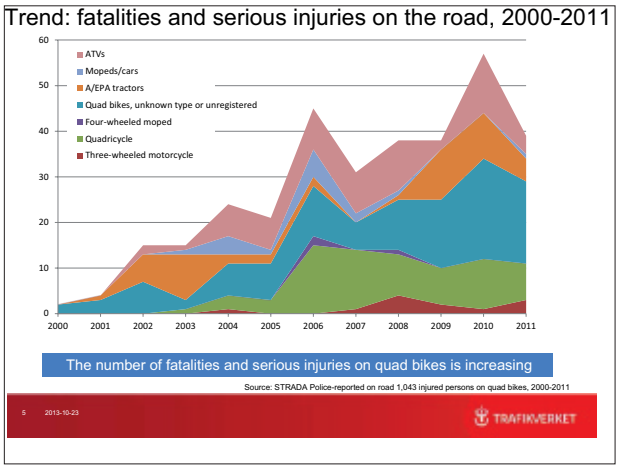
Vehicles within this category have a very wide range of uses. They are used for everything from commercial agriculture, forestry and within the power industry, to a form of transport on public roads and as a leisure pursuit. In this context, "quad bike" is limited to referring to the following vehicles, which have the same fundamental features:

- all-terrain vehicles (ATVs)
- quadricycles
- quad bikes registered as tractors (with a service weight of up to 600 kg)
- four-wheeled engineering vehicles (with a service weight of up to 600 kg)
- unregistered quad bikes
- four-wheeled mopeds

**Background to the strategy work**

Interest in quad bikes is on the increase. In 2012, for the first time, more quad bikes were sold than two-wheeled motorcycles.

Approximately 11,000 registered quad bikes are currently sold per year. At the start of 2013, there were over 90,000 quad bikes registered as ATVs or as a motorcycle for use in traffic. To this number can be added vehicles registered as tractors or engineering vehicles and a growing number of unregistered quad bikes. There have previously been individual initiatives as well as collaborative efforts in this area. One such collaborative effort was the 2008 project conducted in the form of a "quad bike OSA" (OSA: objective findings, solutions and aims). The project was intended to gather various actors in the industry in order to improve safety for those choosing to ride quad bikes. This has led, amongst other things, to an increased level of knowledge within the area and it has provi-


ded data for use in this strategy collaboration. The possibility of including quad bike safety work in the snowmobile collaboration has also been examined. We have also examined whether quad bikes can be included in the joint motorcycle and moped strategy, which is currently limited to only applying to two-wheeled motorcycles and mopeds used on public roads. The conclusion drawn from this examination is that the safety work with quad bikes cannot naturally be incorporated into these existing collaborative areas; they must have their own collaborative area.

## Purpose

The purpose of the strategy is to improve safety for quad bike users. The strategy also aims to systematise the safety work and to increase cooperation in this area.

## Goal

The goal is to cooperate with important actors to produce a joint strategy for improved quad bike safety for the period 2014–2020. The work with the motorcycle and moped strategy is used as a prototype for this. The strategy will show how the number of quad bike fatalities can be halved, and how the number of serious injuries can, by 2020, be reduced to the 2011 level and therefore contribute to the work with at the 2020 interim target. During 2011, there were 9 quad bike fatalities according to the National Board of Forensic Medicine, with 7 of these (Swedish Transport Administration 9) taking place while driving on public roads.

## Main focus

Following a review of the available data, the strategy has been restricted to primarily addressing:

- safety both on and off the road
- all-terrain vehicles (ATVs)
- quadricycles
- quad bikes registered as tractors (with a service weight of up to 600 kg)
- unregistered quad bikes

### Limitations

Avgränsningar har gjorts till att följande fordonsgrupper inte ingår:

- A-tractors and EPA tractors
- three-wheeled motorcycles and mopeds
- golf carts

Engineering vehicles, quadricycles and mopeds with bodywork are only included to a limited extent since they occur less frequently, both regarding registration and accidents. Quad bikes have an environmental impact, primarily when they are used in the countryside, in both legal or illegal activities. This first version of the strategy does not address the environmental impact as its main focus is on safety.

# Increased interest in quad bikes

**Registrations**
Registration is required if a quad bike is to be used outside of an enclosed area. During 2000-2003, around 3,000 quad bikes per year came onto the market, in the form of ATVs. During 2011-2012, the figure was approximately 11,000 quad bikes per year. Sales are still dominated by ATVs, but quadricycles now account for nearly 40 per cent of new registrations. There was a total of just over 91,000 quad bikes, in the form of ATVs or quadricycles, in traffic at the start of 2013. Out of these, 80 per cent were ATVs. The number of quad bikes registered as tractors is small, but it is on the increase.

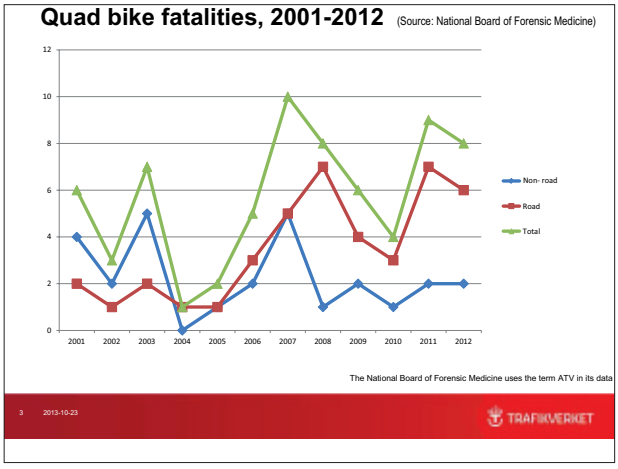
**Traffic insurance (third party)**
All quad bikes are liable to traffic insurance, regardless of whether or not they are registered, even if they are used within enclosed areas. However, traffic insurance is not required if the bike is used in a competition or for training prior to a competition that is held within an enclosed area. For more information regarding rules and conditions for the various types of vehicles, see Annex 2. Information from Länsförsäkringar shows that the number of personal injuries from quad bikes has increased during the period 2009-2012, and that the number is expected to continue rising during 2013. The number of insurance contracts taken out follows the trend for new sales of registered quad bikes. Unregistered quad bikes are the most difficult to monitor, but there is a suspicion that they are not insured to the same extent as they are sold. ATVs have for a long time been prone to theft, and this is still the case. Unlike other stolen vehicles, ATVs are rarely found again. Of the ATVs stolen during 2012, 73 per cent were not recovered, compared with mopeds, where 39 per cent of those stolen were not recovered. The percentage of quadricycles recovered was about the same as the percentage for ATVs. For example, during 2012, 88 per cent of vehicles of the make BRP were not recovered (a total of 42 were stolen). Source: Larmtjänst AB.

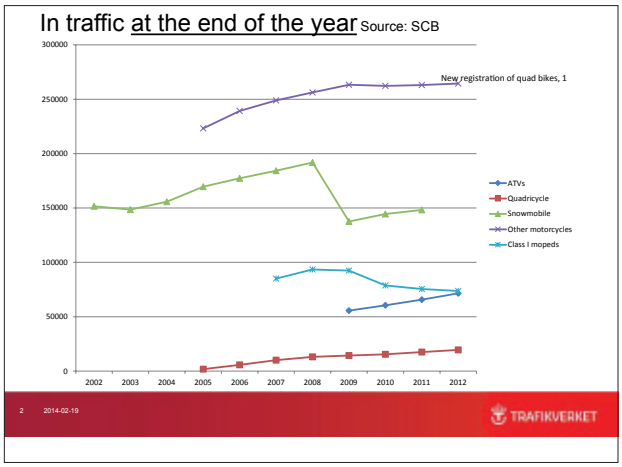
**Quad bike users can be roughly divided up into the following groups:**

**Hobby farmers and land owners**
In this group the owners are around 40-65 years old. They mostly use machines that are registered for all-terrain use, but road-registered machines also feature, depending on their geographical location.

**Recreational users**
In this group the owners are around 30-55 years old. They use mostly road-registered machines but machines registered for all-terrain use also feature.

**Professionals**
This group consists of people that drive ATVs in their work. It is a relatively small groups and the machines are owned by the company they work for.



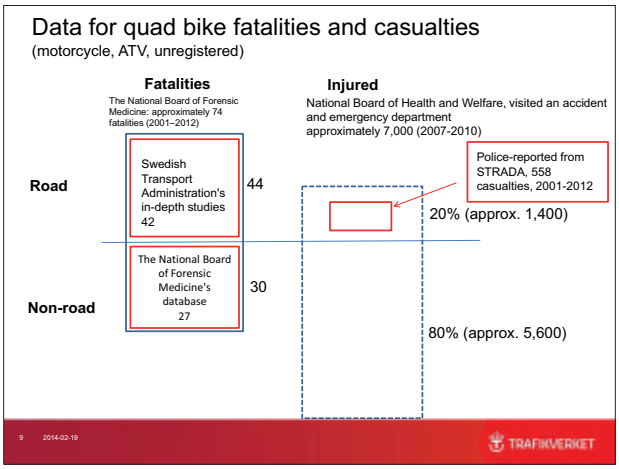
# Accident facts

### Several different sources

The following data has been used to describe the trend as far as injuries are concerned, to analyse the cause of injuries and to narrow down areas of action where there is the potential to reduce the number of fatalities and casualties:

- The Swedish Transport Administration's in-depth studies of 42 fatal road accidents involving quad bikes, 2001–2012
- The National Board of Forensic Medicine's database, a total of 74 fatalities, 27 of which occurred off-road, 2001–2012
- STRADA , the Swedish Transport Agency, 558 police-reported road accidents involving quad bikes and casualties, 2001–2012
- Injury Database, IDB, the National Board of Health and Welfare, approximately 7,000 hospital-reported non-fatal injuries resulting from accidents involving quad bikes on and off of public roads, 2007–2010
- SCB (Statistics Sweden), number of registered vehicles

The results are described in a Powerpoint presentation on the Swedish Transport Administration's web site. Based on this data, an introductory effect appraisal has been conducted, where there has been possible. Using this information, prioritised operational areas have been selected. Unfortunately it has not been possible to state the potential in terms of a reduced number of fatalities and very serious injuries, broken down by all operational areas. Below is a summary of the injury situation, according to the various pieces of data.



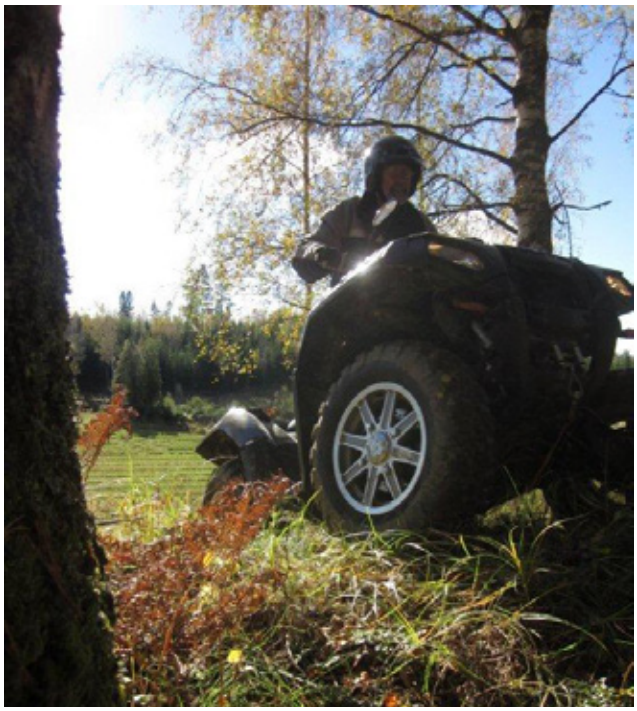

* STRADA (Swedish Traffic Accident Data Acquisition) is the Swedish Transport Agency's information system for casualties and accidents within the road transport system..

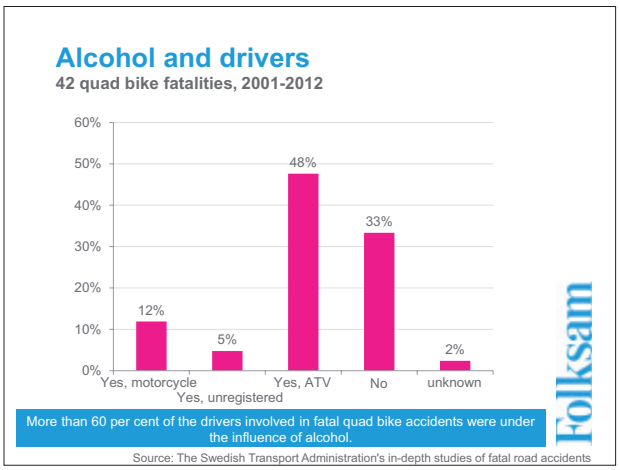
## Single-vehicle and alcohol-related accidents dominating

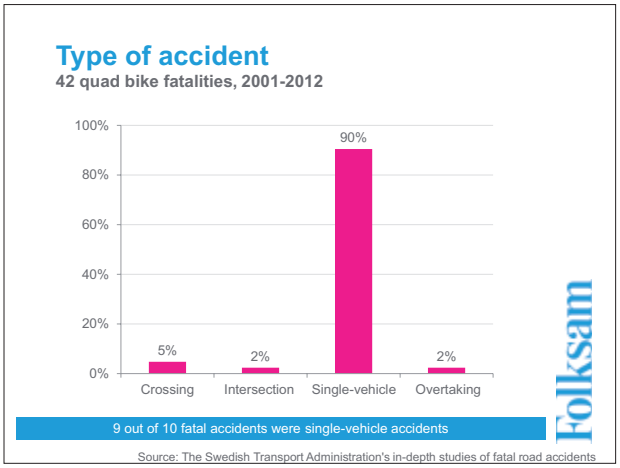
The data provided by the National Board of Forensic Medicine and by the Swedish Transport Administration shows that the number of fatalities on quad bikes in road traffic has increased. The National Board of Forensic Medicine's data shows that 61 per cent of the fatal accidents on and off-road are alcohol-related. This is confirmed by Folksam's summary of road fatalities.

**Deaths on and off-road Source: The National Board of Forensic Medicine: 74 fatalities 2001–2012**

- 58 per cent in road traffic
- average age 44 years
- 93 per cent men
- 96 per cent single-vehicle accidents
- 61 per cent alcohol-related and high pro mille content (2007–2012, Eriksson, 2013)



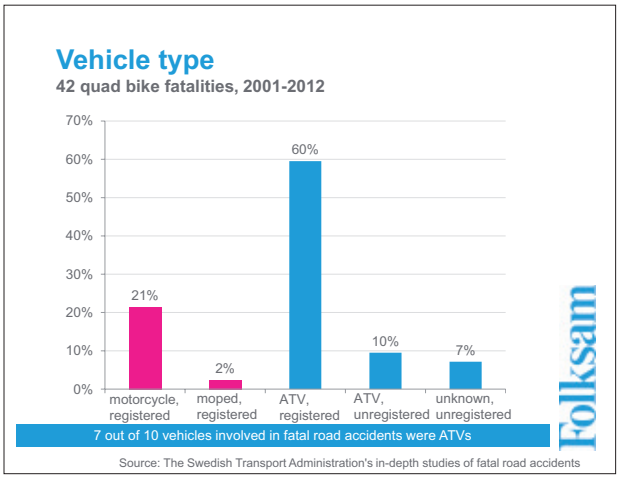



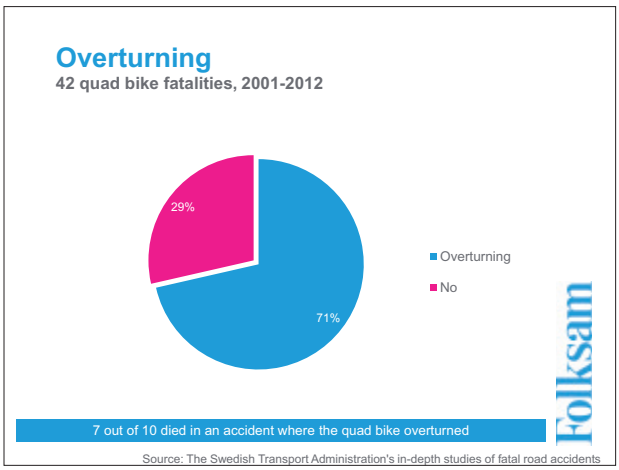
## ATV fatalities most common

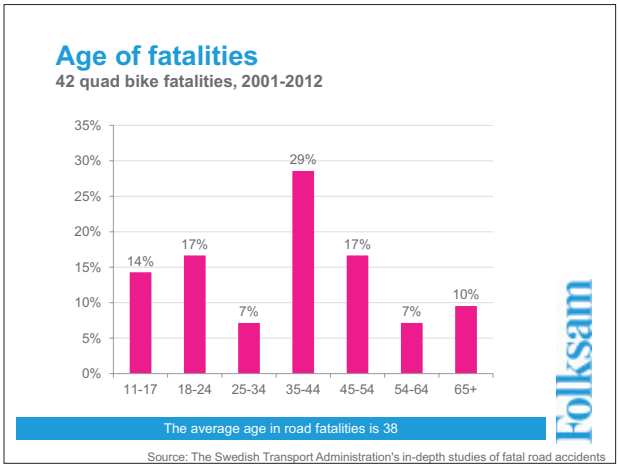
7 out of 10 vehicles involved in fatal road accidents were ATVs. 1 in 5 vehicles were registered as motorcycles. 7 out of 10 died accidents where the quad bike overturned. Many victims have ended up beneath an overturning vehicle, and 1 in 5 were found still under the vehicle. The average age in fatal accidents was 38, which is comparable with the figure for fatal road accidents involving two-wheeled motorcycles.

**Deaths on the road Source: The Swedish Transport Administration's in-depth studies of fatal road accidents: 42 fatalities 2001–2012**

- 7 out of 10 of the vehicles involved in fatal accidents were ATVs.
- More than 6 out of 10 drivers involved in fatal quad bike accidents were under the influence of alcohol.
- The average alcohol content of those under the influence was 2.0 pro mille.
- Head injuries account for more than half of the fatal injuries.
- 7 out of 10 died in an accident where the quad bike overturned.
- At least 1 in 3 of the fatalities had the vehicle on top of them at some point during the accident.
- In at least 1 in 5 of the cases, the victims were discovered still under the vehicle.



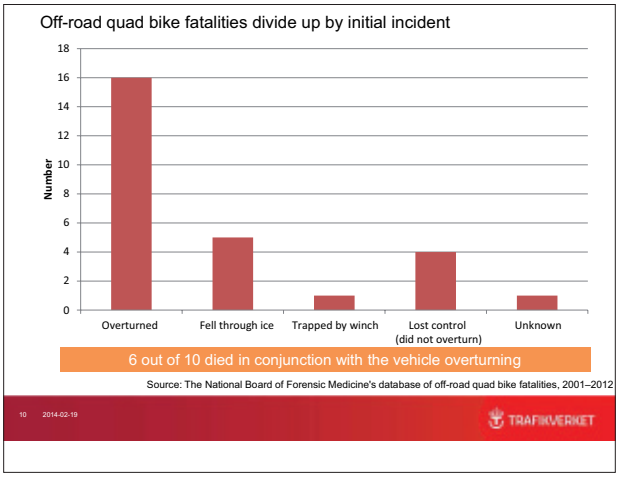



**Most fatalities connected to vehicles overturning**
6 out of 10 off-road fatalities were related to vehicles turning over. Several deaths have also been caused by ice breaking.

**Deaths off-road Source: The National Board of Forensic Medicine: approximately 27 fatalities 2001–2012**

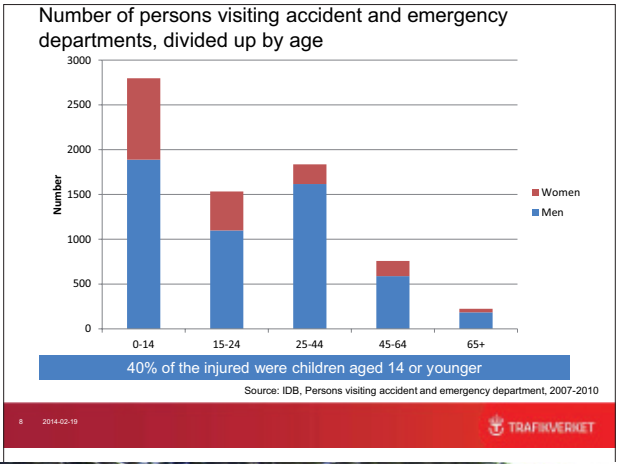
- 15 per cent head injuries, 26 per cent chest injuries, 19 per cent drowning
- 60 per cent vehicles overturned
- 56 per cent trapped under vehicle

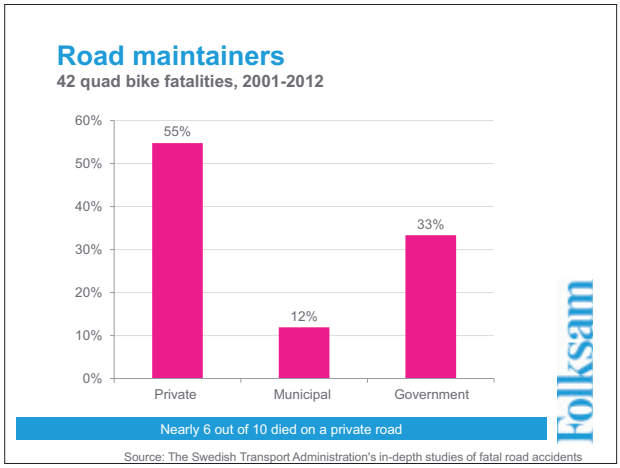


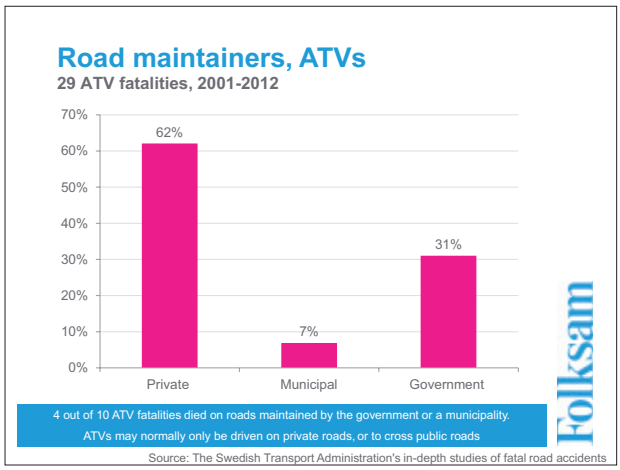

**High percentage of injured children**
Of those admitted for emergency care where it has subsequently emerged that the cause of their injuries was a quad bike accident, 40 per cent were children under the age of 15. (The data is based on a number of reporting casualty departments and then recalculated as a national figure)

**Injuries on and off-road Source: The National Board of Health and Welfare, approximately 7,000 persons, 2007-2010**

- 21 procent i trafikområdet, 22 procent i skogsområde och 19 procent på infart eller parkering
- 40 procent barn under 15 år
- Armfraktur är den vanligaste skadan (20 procent).

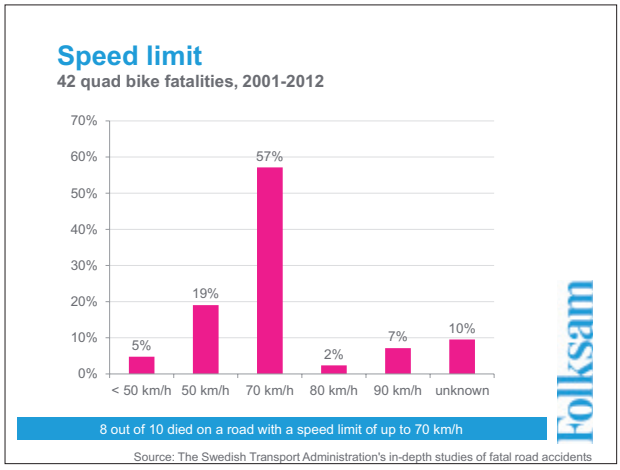


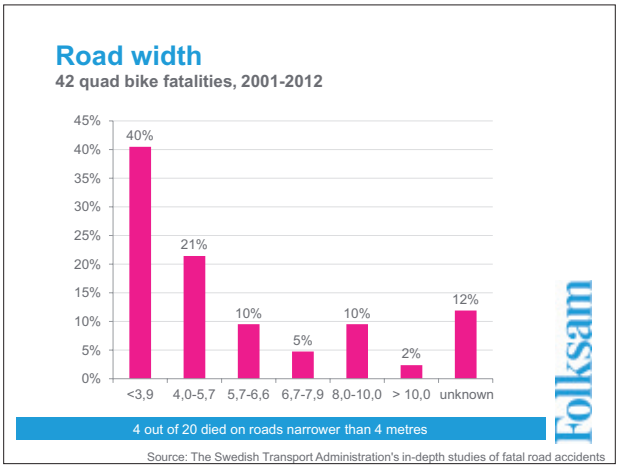




**Most fatalities on minor roads**

Nearly 6 out of 10 deaths occurred on private roads. 4 out of 10 ATV fatalities died on roads maintained by the government or a municipality. ATVs may normally only be driven on private roads, or across public roads, so this is, accordingly, a very high percentage. Fatal accidents involving quad bikes occurred primarily on minor roads: 8 out of 10 died on a road with a speed limit of up to 70 km/h and 4 out of 10 on a road less than 4 metres wide.



## Injuries most common in the summer

Police-reported injuries on the road are most common in the summer months (May-August). In at least 7 out of 10 cases, the driver is the casualty.

**Injuries on the road Source: STRADA, 558 police-reported injured persons in road accidents involving quad bikes, 2001–2012**

- 8 out of 10 casualties are men.
- In at least 7 out of 10 cases, the driver is the casualty.
- 6 out of 10 are injured in connection with single-vehicle accidents.
- At least half of those injured on quad bikes are riding on a government or municipally-maintained road.

## Fatalities and casualties for different types of quad bikes

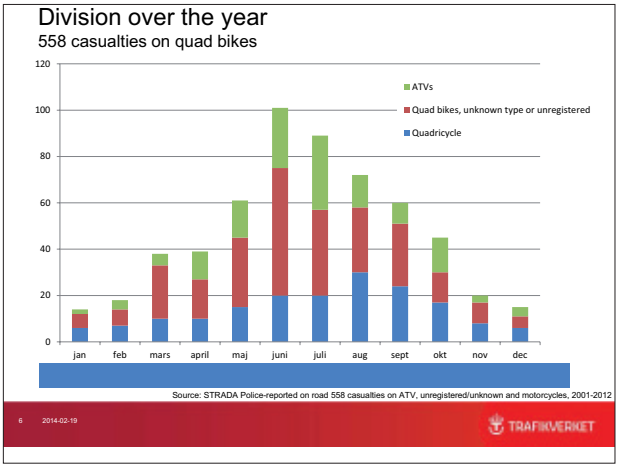
### Quadricycles

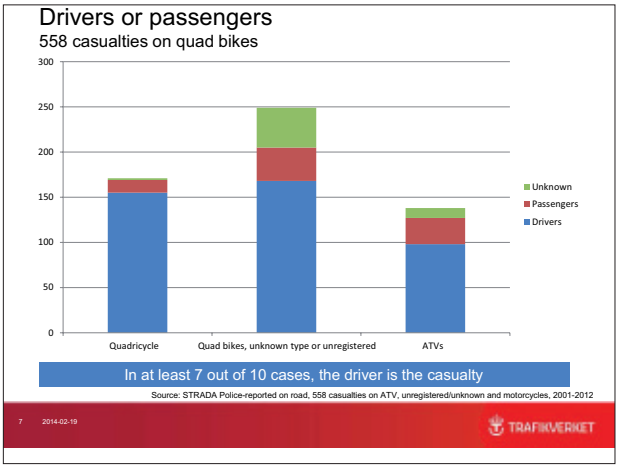
**Fatalities: The Swedish Transport Administration's in-depth studies of fatal accidents: 9 fatalities in road accidents, 2006–2012::**

- Average age was 44 years.
- 2 out of 9 were passengers.
- 5 out of 9 had no helmet. 3 of these would have survived it they were wearing a helmet.
- 7 out of 9 died in single-vehicle accidents, 1 at an intersection and 1 in collision with pedestrians.
- 5 out of 9 drivers were under the influence of alcohol with an average alcohol content of 1.82 pro mille.
- 6 out of 7 single-vehicle accidents occurred when the rider drove off the road.
- At least 4 out of 9 died in an accident where the quad bike overturned.
- No-one died as a result of ending up under an overturning bike.

**Injuries: STRADA, police-reported: 174 persons injured in road accidents, 2004–2012:**

- Average age was 34 years.
- 8 per cent were passengers.
- 68 per cent were single-vehicle accidents.




## ATVs

**Fatalities: The Swedish Transport Administration's in-depth studies of fatal accidents: 29 fatalities in road accidents involving ATVs, 2001–2012:**

- Average age was 37 years.
- 1 out of 10 were passengers.
- 7 out of 10 had no helmet . Approximately 1/4 of these would have survived it they were wearing a helmet.
- 9 out of 10 were single-vehicle accidents (1 at an intersection, 1 collision, the others were single-vehicle accidents).
- 7 out of 10 drivers were under the influence of alcohol with an average alcohol content of 2.13 pro mille.
- Vehicles overturned in 3 out of 4 accidents of which 2/3 only involved the vehicle turning over.
- Out of those involved in accidents where the vehicle turned over, 1 in 3 were discovered under the quad bike.

**Injuries: STRADA, police-reported: 144 persons injured in road accidents, 2003–2012:**

- Average age was 35 years.
- 20 per cent were passengers.
- 56 per cent were single-vehicle accidents.

## Unregistered or unknown type of registration

**Fatalities: The Swedish Transport Administration's in-depth studies of fatal accidents:**

- 2 cases where the vehicle overturned and the victim died as a result of having the vehicle on top of them

**Injuries: STRADA, police-reported: 258 injuries in road accidents, 2001–2012:**

- Average age was 31 years.
- 14 per cent were passengers.
- 57 per cent were single-vehicle accidents.

# Scheme for increased safety for quad bike users

**Joint priorities and cooperation**
The strategy presupposes that all actors carry out measures at local, regional, national and international level within their own area of responsibility – individually, or in collaboration with others. The actors contribute primarily by directing their activities at the prioritised operational areas.

**Annual monitoring**
An annual summary will be conducted of the trends, developments and the activities of the actors, mainly in the prioritised operational areas. This is done to monitor developments and to support the actors in this field. The Swedish Transport Administration intends to initially invite involved actors to annual summary meetings. The matter of whether to form a council for quad bike issues will be addressed at these meetings.

**Regular development of the strategy**
There is a great deal going on within this area at the moment. Vehicles are constantly being developed and other countries are paying more and more attention to this area. The strategy document therefore needs to be developed based on the number of injuries and fatalities, the activities that the actors have conducted and any new knowledge in the field. The review of the strategy should follow the same schedule as the review of the interim target work, which means that it should be started no later than during 2016. The Swedish Transport Administration intends to initiate the development of the strategy, which is to happen in cooperation with important actors.

**Systematic increase in knowledge and identification of where it is lacking**
The prioritisations that are made shall be based on facts and scientific grounds as much as possible. There is currently a lack of knowledge in several areas, such as the effects associated with various measures. The strategy involves highlighting the need for research and innovation, both nationally and internationally.

**Link to other Swedish traffic safety work**
The traffic safety work conducted in Sweden is based on Vision Zero. The goal is that fatalities and serious injuries should be halved by 2020, with a long-term goal that they be eliminated completely. In order for this to be achieved, ”management objectives” are applied. Central to the management objective work is annual monitoring of traffic safety trends based on a number of indicators, i.e., conditions that affect the number of fatalities and serious injuries in traffic (Swedish Transport Administration 2013:089). Each indicator has a target for 2020. Our activities and measures can then be linked to these indicators. There are few indicators that specifically concern quad bikes. On the other hand, there are indicators that apply to quad bike users to the same degree as they apply to other road-users, such as compliance with speed restrictions and sobriety regulations. Other indicators can also be generalised to encompass quad bike safety –- helmet usage, for example. A such, quad bike safety issues are included in the management objectives that are part of Sweden’s traffic safety work. The strategy work includes activities to make quad bike safety issues more visible within the management objectives.

# Prioritised operational areas

**Those who ride quad bikes are normally unprotected motorists, i.e., the vehicle has no protective outer shell. This means that even at low speeds, there are major consequences for the riders. It is important that we work both to prevent accidents and to minimise the risk of injury when an accident does occur. The analysis group has shown that the total potential in the prioritised areas is sufficient to achieve a fifty per cent reduction in fatalities. Unfortunately, it is not currently possible to break down the potential reduction in fatalities and serious casualties by operational area. The measured described have been developed in the cooperative strategy work. The stakeholders describe both the measures they intend to take, either individually or in collaboration with others, and also their standpoints, based on existing knowledge.**

## Information

**Background:**

The rules concerning quad bikes are complicated, largely due to the fact that the group consists of many varying categories of vehicle. There is a great deal of ignorance regarding the rules, and the consequences of not complying with them. This ignorance is fuelled by the complexity of the rules. There is currently a great deal of misleading marketing, conducted primarily over the Internet but also via other media, specifically targeted at children. Those who use quad bikes in their work have better opportunities to access and benefit from information, compared with recreational users.

**Measures:**

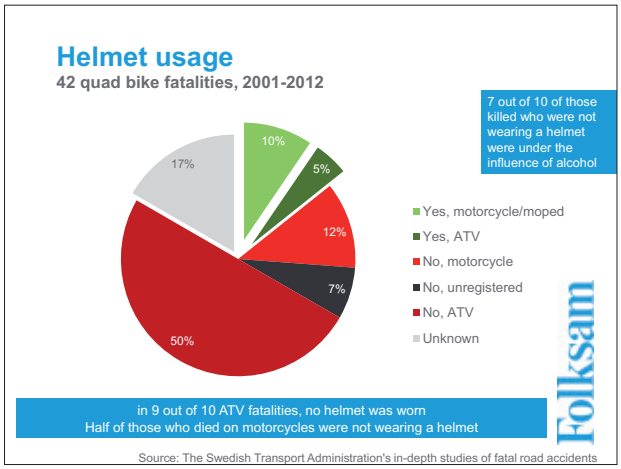
- During 2014, the Swedish Transport Agency intends to update and renew its brochure on quad bikes. This will be done in collaboration with the industry and concerned agencies.
- During 2014, ATV-leverantörernas förening [the ATV suppliers' association] intends to upgrade its document "Fakta om fyrhjulingar" [Quad bike facts]. The work will be conducted in collaboration with the Swedish Transport Agency.
- ATV-leverantörernas förening intends to encourage its members to communicate to their distributors the importance of informing consumers of the rules that apply to quad bikes.
- TFF – The Swedish Motor Insurers, together with the ATV suppliers' association, intends to improve information regarding the fact that the vehicles are liable to traffic (third party) insurance.
- During 2014, Säker skog intends to establish a new training system for all-terrain driving encompassing rules, risk-awareness, driving techniques and knowledge of the vehicle and the terrain on which it is being driven.
- LRF – The Federation of Swedish Farmers, through its extensive contact network, intends to disseminate facts and information material regarding better safety in quad bike use to businesses and private individuals in rural areas. LRF is Sweden's largest business-owner's organisation with over 90,000 businesses and more than 170,000 members.
- Dealy Sweden AB and ATV Sweden intend to contribute to the dissemination of information to consumers by giving the information document that the Swedish Transport Agency intends to produce in conjunction with this collaboration to all who those purchasing machines.
- STHR (Sveriges terrängutbildares riksförbund) – the Swedish all-terrain driving instructors' association intends to communicate and teach the rules that apply in conjunction with its training courses.
- Svenska ATV-föreningen [the Swedish ATV association], in collaboration with MHF Ungdom [a youth motor sports association] intends to reach out to young people and parents with safety information, and inform them of the need for training, in connection with their various tournament activities.
- The Swedish Transport Administration intends to support the production of information material by providing data in the form of research results and accident analyses.
- The Swedish Consumer Agency intends to disseminate information to consumers via its various information channels. The Agency is also positive towards the industry's initiative to investigate the possibility of a joint industry agreement, for example "delivery terms for ATVs and quad bikes". In addition to this, the Agency also intends to help by providing information on product safety and marketing.
- The Swedish Committee on Working Environment in Agriculture (LAMK) intends to contribute to the spreading of knowledge and get involved in safety issues concerning the use of quad bikes within the agricultural sector.
- The Swedish University of Agricultural Sciences at Alnarp will be continuing its involvement in research into risks and injury prevention in the use of quad bikes in rural areas, where the use of quad bikes by children and adolescents is of particular interest.

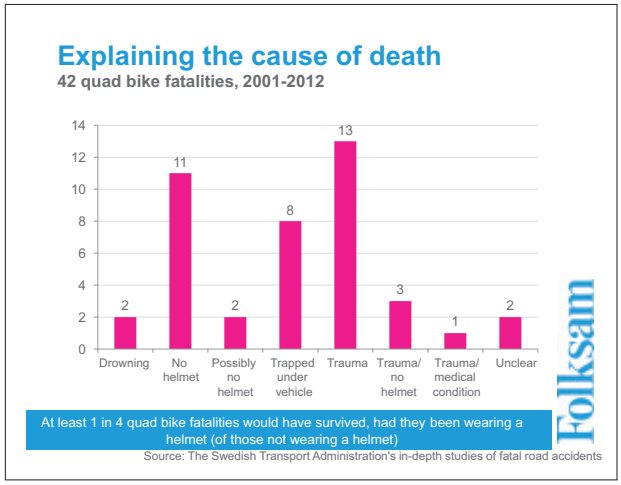
## Personal protective gear

**Background:**
The person operating a quad bike, regardless of the category of vehicle, is an unprotected motorist. It is therefore of particular importance that personal protective gear, in the form of a helmet, protective clothing and boots, are worn. The best data currently available to us regarding helmet usage are the in-depth studies of road fatalities conducted by the Swedish Transport Administration and compiled by Folksam in 2013.

**They show that:**

- head injuries account for more than half of the fatal injuries




- in 9 out of 10 ATV fatalities, no helmet has been worn
- at least 1 in 4 quad bike fatalities would have survived, had they been wearing a helmet (of those not wearing a helmet)
- 7 out of 10 of those killed who were not wearing a helmet were under the influence of alcohol.

The analysis group's introductory calculations indicate that a helmet requirement for ATVs has the potential of reducing the number of road fatalities by 28 per cent (8 of 29 fatalities). Out of the 8 (out of a total of 9) who died on the road on an ATV, and who would have survived, had they been wearing a helmet, 6 were under the influence of alcohol, with an average alcohol content of 1.9 pro mille. According to information from the National Board of Health and Welfare, arm fractures are the most common injury (38 per cent) amongst serious casualties, but leg and head injuries are also common, at around 20 per cent for each category.
During 2013, the Swedish Transport Agency proposed that the government introduce a helmet requirement that would apply for drivers and passengers using ATVs and snowmobiles.

**Measures:**

- ATV-leverantörernas förening, Dealy Sweden AB, LRF, Säker skog, the National Police Board, Sveriges terrängutbildares riksförbund, ATV Sweden, the Swedish Transport Agency, TFF – The Swedish Motor Insurers and SLU support the helmet requirement for ATV users. The helmet requirement should also apply to ATVs registered as tractors, although the legislation should be formulated so that the requirements does not apply to traditional and significantly larger tractors with a service weight in excess of 600 kg since these nearly always have an enclosed cabin. LRF and Säker skog are, in principal, in favour of a helmet requirement for ATV use, although this is under the condition that there are certain exceptions within the legislation for certain types of work, for shorter driving distances, and that different types of helmets may be worn.
- STHR and Svenska ATV-föreningen require helmets to be worn during their training courses.

## The eCall emergency alarm system

**Background:**
Quad bikes are often used on minor roads but, in certain conditions, also off-road. Even minor accidents occurring in desolate locations risk becoming serious, since rescue and care can often not be provided in time. The market is currently opening up for several different types of emergency alarm systems, ”eCalls”, which can reduce the response time for care. Initial calculations conducted by the analysis group have shown that eCall has the potential to reduce the number of road fatalities by 10 25 per cent. The potential is probably even greater concerning off-road accidents. The increased demand for and use of these systems is therefore of value.

**Measures:**

- STHR intends to provide information about these systems in conjunctions with its training courses and is willing to collaborate with suppliers of such systems to bring about increased usage of these systems.
- The Swedish Transport Administration intends to contribute through evaluations of the effects of various eCall systems, by highlighting these within research and innovation work conducted during 2014.
- TFF – The Swedish Motor Insurers intends to provide information on these systems in conjunction with its meetings with traffic insurance companies.
- ATV-leverantörernas förening is positive to eCall systems featuring an SOS function.

## Safety systems

**Background:**
Examples of safety systems for quad bikes:

- alcolocks (alcohol ignition interlock systems)
- anti-rise electronics
- anti-skid systems
- physical roll over protection structures (ROPS) such as roll bars
- roll over warning system.

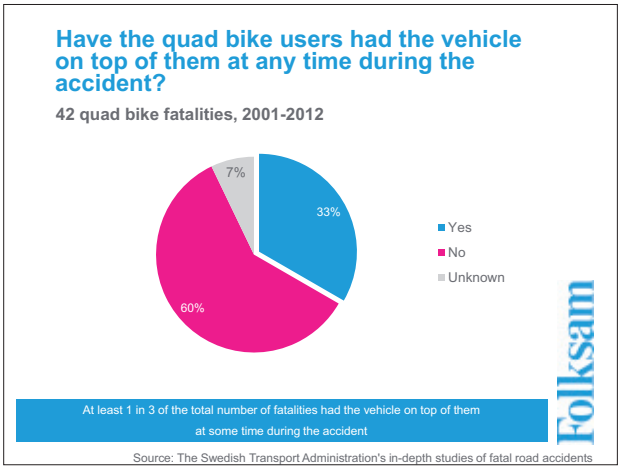
The in-depth studies of road fatalities conducted by the Swedish Transport Administration and compiled by Folksam in 2013 show that:

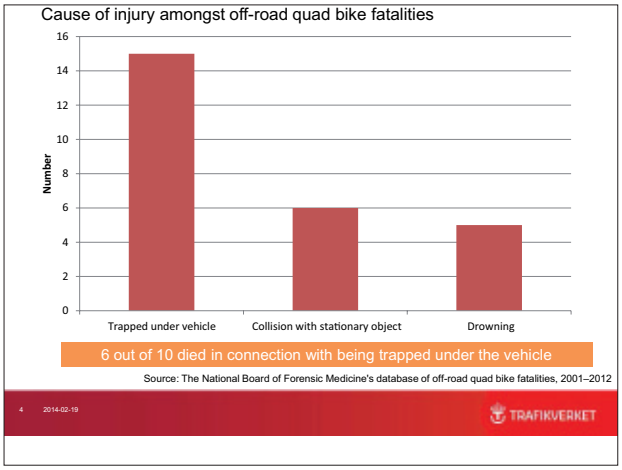
- nearly 3 out of 4 fatalities died in an accident where the quad bike overturned
- at least 1 in 3 of the total number of fatalities had the vehicle on top of them at some point during the accident
- at least 1 in 5 of the total number of fatalities were discovered still under the vehicle
- more than 60 per cent of the drivers involved in fatal quad bike accidents were under the influence of alcohol. The average alcohol content was 2.0 pro mille.

Data from the National Board of Forensic Medicine shows that:

- 6 out of 10 deaths involved the vehicle overturning off-road
- 61 per cent of the fatal accidents were alcohol-related and the pro mille content was high (2007-2012, Eriksson, 2013).

The analysis group’s introductory calculations indicate that a roll over protection structure has the potential to reduce the number of road fatalities by up to 70 per cent. Antiskid systems for quadricycles have the potential to reduce the number of road fatalities by 35 per cent. Physical roll over protection structure (ROPS) have the potential to reduce the number of road fatalities by 33 per cent. Further research is needed in this area.




There is a strong connection between alcohol usage and the failure to wear a helmet. 7 out of 10 of those killed who were not wearing a helmet were under the influence of alcohol.

Alcolocks on quad bikes would seriously help to reduce the number of alcohol-related accidents. Working in various ways towards the voluntary installation of alcolocks would be a first step in reaching out with technical support, and one with enormous potential. One of the Swedish Transport Administration's Plate Fund projects tested a number of alcolocks (various manufacturers) on a range of snowmobile models during the winter seasons 2007/2008 and 2008/2009. The project shows that the installation of alcolocks on snowmobiles works well. Alcolocks can currently be installed on snowmobiles on a non-compulsory basis, although this is fairly rare. As far as alcolocks or technology supporting the sober use of all vehicles is concerned, the 2010 investigation into alcolocks found that it was difficult to introduce such technology on a national basis without the rest of Europe showing the same interest. Even if some voices have been raised within the EU regarding more long-term conditions for changes to legislation, this would probably mean a gradual introduction with the first focus being on other types of motor vehicles. Voluntary agreements and initiatives regarding alcolocks and other sobriety-promoting technology for certain types of vehicles, or within certain areas within the strategy, will therefore be significant with regard to increased sobriety. It is currently possible to apply for driving license with special conditions, for all authorisation categories including MC and AM (mopeds), following alcohol-related convictions. This does not however apply to conditional licenses or tractor licenses.

The Swedish Work Environment Authority's interpretation of the machine regulations for roll bars for ATVs is that a roll bar that is retro-fitted on a CE-labelled quad bike is considered to be a safety component. As such they have to undergo the procedure that applies for safety components before they are put on the market. The procedure is the same as it is for a machine and means that controls are carried out to ensure that the product satisfies the relevant health and safety requirements, the technical manufacture documentation is produced, and that an assurance that the product agrees with this documentation is provided, and that the roll bar is CE-labelled.

**Measures:**

- LRF point out that a physical roll over protection structure is the most effective way of reducing fatal accidents and serious injuries associated for quad bikes. Their assessment is based on facts that have emerged from Swedish and foreign research, together with medical reports and other compilations of the causes and consequences of accidents. However, LRF has not adopted a stance regarding any legal requirement but, instead, sees roll bars as a future, natural accessory for those who want to use their quad bike safely.
- SLU states as follows: "In order to improve safety in the use of ATVs, it is important that general safety regulations are followed, i.e., that a helmet is worn, that there are no passengers on the vehicle, that the machine's luggage carrier is not overloaded, and that the user, in general terms, drives in a discerning manner, and that they obtain training in how to drive safely. However, this does not remove the benefit of equipping the machine with a well-adapted roll bar. We consider it to be proven beyond all doubt that the safety value of roll bars is greater than the disad-

vantages that may in certain cases be associated with them."

- The Swedish Transport Administration is in favour of roll bars and will be following the development of the consumer tests of the various features of quad bikes that are in progress in Australia, and will be reviewing the possibility of introducing corresponding features, adapted for Swedish conditions.
- Säker skog feels that roll bars are an interesting alternative that should be investigated further. "For certain categories of users, for example the handicapped or elderly people with physical impairments, we are convinced that this form of protection can be of benefit, but we are not convinced that they always cause more good than harm." Säker Skog is interested in following developments and in participating in any user tests, etc., that might result.
- Dealy Sweden AB states as follows: "We are cautiously positive to the recommendation of the use of some form of roll bar as we believe, without having the scientific proof for this, that, in the majority of cases, the pros of having roll bars outweigh the cons. We would like to see a scientific study of this conducted in Sweden."
- ATV Sweden doubts very much whether roll bars have any positive effects. As an added extra they are completely fine, but as a legal requirement they currently say no.
- ATV-leverantörernas förening undertakes, with the help of expertise and available resources, to contribute to the development of various types of electronic safety systems for quad bikes.
- ATV-leverantörernas förening questions whether physical roll over protection structures are an effective safety solution for all types of quad bikes and all areas of use. However, they also feel that the development of electronic aids can be a practicable way of reducing accidents.
- SLU in Umeå, together with SMP, the Swedish Machinery Testing Institute, will be conducting a questionnaire survey which will be sent to virtually everyone in Sweden who has fitted a roll bar to their quad bike. The aim is to compile experiences of using quad bikes equipped with different forms of roll bars.
- SLU in Umeå will be co-host seminars in Sweden where Australian researchers, internationally recognised for their work with quad bike-related accidents, will also be in attendance. The aim is to transfer the knowledge of world-leading researchers to us in Sweden, regarding how the effects of quad bike-related accidents can be reduced, and to: Transfer knowledge from Sweden to the same group of world-leading researchers with regard to specific driving situations that occur more often in Sweden than internationally, in order to evaluate whether existing and tested simulation models for accident evaluation can also be utilised for these situations, or whether new models must be developed.
- STHR states: "We do not feel ready to recommend physical roll over protection structures as there is no research that demonstrates that they have the desired effect in the event of a vehicle overturning. If physical roll over protection structures are to be used, they must be supplied by vehicle manufacturers who can guarantee that safety devices and fixtures in the vehicle can withstand the stresses that occur when the vehicle is overturned. We would be happy to participate in a research project where various quad bikes and roll bar models are subjected to being overturned, if these tests are conducted using the latest technology and crash-test dummies. We also believe that the introduction of different electronic safety systems can make driving safer, and we are prepared to contribute with the benefit of our experiences."
- Svenska ATV-föreningen comments: "Roll bars are nothing that we can support until more research has been carried out, since we see ourselves as an organisation that has primarily 'recreational users'".
- TFF – The Swedish Motor Insurers has not taken a stance with regard to legal requirements for roll bars. On the other hand, roll bars are seen as a natural accessory for those who want to use their quad bike safely.
- During 2014, the National Police Board will be reviewing which requirements are applicable in police activities. For example, the police authority in Stockholm has specified a safe starting mode so that it is impossible to start the vehicle in gear. There is already a police requirement that approved motorcycle clothing is to be worn.
- SLU Alnarp is participating in an international research network on safety issues concerning quad bikes and will gladly provide updated information regarding developments in other countries.

## Speed

**Background:**
The various types of quad bikes have different possible speeds. For example:

- Tractors have a maximum design speed of 40km/h
- Mopeds have a maximum design speed of 45km/h
- Motorcycles have an power limitation of 15kw.
- ATVs may normally only be driven at 20km/h on private roads. (They may not normally be driven on public roads, see Annex 2)

According to the actors involved, it is clear that many quad bikes, especially those registered as motorcycles, are specially tuned up. The user manipulates the power restriction that is prescribed by law and with which the vehicle is equipped when delivered, or alternatively removes it. It is also currently difficult to determine whether a vehicle is specially tuned, for example at regular vehicle inspections or following an order for registration inspection. The new registration of tractor-registered quad bikes is increasing, and these vehicles are constructed for a maximum speed of 40 km/h. It is also extremely important for the safety of tractor-registered quad bikes that they are not manipulated, but retain the speed limitation with which the factory equips them. The best data currently available to us regarding speed is the in-depth studies of road fatalities conducted by the Swedish Transport Administration and compiled by Folksam in 2013. They show that few cases of over-tuning motorcycles have been recorded. This is probably due to the fact that few checks are carried out by the police authorities in connection with fatal accidents. The analysis group's introductory calculations indicate that compliance with speed limits has the potential to reduce the number of road fatalities by 7 per cent. To this can be added the effect of larger number of ATVs adhering to the 20km/h speed limit on roads.

**ATVs may be driven on private roads**

On other roads, they may be driven to cross the road or for the shortest distance possible, if the terrain is impassable. On private roads, ATVs are not normally to be driven faster than 20 km/h. There is one exception: on private roads that are rarely used for public traffic, the road's speed limit applies.

**Measures:**

- ATV-leverantörernas förening intends, via its members' retail network, to inform consumers of the importance of not manipulating the vehicle they purchase to increase its power or its maximum speed. For practical use within agriculture and forestry, speeds over 40 km/h are not required. The association supports any regulation that in one way or another encourages slower or less dangerous works vehicles, or safer drivers.
- Säker skog considers that, for practical use within agriculture and forestry, speeds over 40 km/h are not necessary. They support regulations that in one way or another encourages slower or less dangerous works vehicles or safer drivers, via lower charges etc.
- SLU intends to help with the increased number of tractors by advocating tractor-registered vehicles when they are asked to give advice.
- Dealy Sweden AB intends to help disseminate information concerning not over-tuning or removing power limiters from vehicles by bringing this up in their training courses and at meetings with mechanics and store managers.
- ATV Sweden has a zero tolerance to over-tuning. Means that warranties and the like being are voided if the machine is modified with non-original parts.
- The Swedish Work Environment Authority carries out "market controls" based on the Machinery Directive and the corresponding Swedish regulations. This means, amongst other things, that the Authority handles cases involving technical faults in ATVs.
- The National Police Board will in various different ways during 2014 improve expertise levels in the police force regarding the quad bike vehicle category as a whole, and especially with regard to the problem with over-tuned vehicles. Under the condition that technical specifications are available for comparative purposes, the police will improve its technical investigations of quad bikes involved in serious accidents.
- TFF – The Swedish Motor Insurers believes that if a vehicle is choked in order to be approved as a quadricycle (15 kW), then the choking is to be done in such a manner that it cannot later be altered or undone. If it is thought that a choking is easy to undo, then the vehicle should not be approved as a quadricycle.

## Education

**Background:**
The various types of quad bikes have different driver qualification requirements. See Annex 2. The training for motorcycle and moped licenses and conditional licenses has recently been reviewed. The training that currently exists for ATVs is, firstly, training for a conditional license, and then a commercial and non-compulsory commercial training of 20 hours in duration. There are several problems with this system, for example, that there is no training in a format that is specifically tailored for, e.g., agriculture and forestry. Within Säker skog, work underway to create a completely new training system, based on a large number of different training modules.

**Measures:**

- During 2014 the Swedish Transport Administration will be being to review regulations and examine the extent to which the content of current training needs to be developed.
- Säker skog intends to develop a new, goal-based training system consisting of various expertise modules (based on its experiences from chainsaw training) that are tailored to different categories of ATV drivers, possibly including a new, uniform conditional license test. A working group including the Swedish Transport Agency, the Swedish Transport Administration, the Swedish Work Environment Authority, user representatives, Sveriges terrängutbildares riksförbund and Säker skog is being formed to review ATV training for various professional and recreational target groups. Experiences from chain saw training show that interest is increasing and the results of the training are improved if it is goal-based with relatively demanding tests that are organised more freely.
- ATV-leverantörernas förening intends to continue supporting the development of a new training system for ATVs by contributing with its industry knowledge and, where necessary, helping by providing access to vehicles and other equipment.
- SLU intends to contribute by summarising previous research.
- LRF feels that better and more extensive training is required for ATV users. LRF has therefore participated in a new training concepts that is currently being developed by Säker skog. When the training is ready, and has been approved by the authorities, LRF will be marketing the training within its extensive organisation and contact network.
- The Swedish Work Environment Authority. The knowledge of the users (employees) regarding the safe usage of quad bikes will be included in the Swedish Work Environment Authority's supervision of businesses and organisations that use quad bikes in their work, in the same way as applies to other work equipment. The supervision is conducted based on rules regarding the use of work equipment where it is stated that the employer is to have documentation of the employees' practical and theoretical knowledge regarding the safe usage of equipment where there are specific risks.

## Systematic monitoring and constant improvements

There is much happening in the quad bike field at the moment. Vehicles are constantly being developed and other countries are paying more and more attention to this area. The strategy document therefore needs to be developed based on the number of injuries and fatalities, the activities that the actors have conducted and any new knowledge in the field. The document will be reviewed alongside the reviews of the interim target work, which means that the strategy should begin to be reviewed no later than during 2016. The Swedish Transport Administration intends to take the initiative in the development of the strategy, which is to happen in cooperation with important stakeholders. One group that should be invited in to the ongoing work is those who use quad bikes in connection with the care of livestock such as reindeer. This is a group of users who use quad bikes in a specific way and they may therefore have specific needs. In order to be able to effectively monitor and influence developments relating to quad bike usage, our data systems must also make searching for the desired information easier.
This is required in connection with analyses of vehicle development and the number of casualties and fatalities. Since 2012, ATVs and snowmobiles have had separate bodywork codes in the Road Traffic Registry, so that STRADA can differentiate between the different types of vehicle. The reason why we have so many quad bikes of unknown class in our accident data is that the part of the road traffic registry that contains the vehicle categories (L1, L2, etc.) is not linked to STRADA.

**Measures:**

- The Swedish Transport Administration intends to initially invite involved actors to annual summary meetings. The annual reconciliations aim to follow trends, developments and the activities of the stakeholders, above all within the prioritised operational areas.
- The Swedish Transport Administration intends to take the initiative in the development of the strategy during 2016. This will occur in cooperation with important stakeholders.
- ATV-leverantörernas förening undertakes to actively, and with high ambitions, take part in future monitoring and improvements, and is also in favour of the proposal for the formation of a quad bike council.
- Säker skog is interested in participating in the ongoing collaborations, follow-ups and development projects.
- During 2014, the Swedish Transport Agency intends to analyse the development need and propose measures for the registers for which it is responsible.
- LRF: Safer quad bike usage is an important issue for LRF. The majority of farmers currently have a quad bike at their farm and view it as an excellent piece of working equipment. Anything that can help to reduce accidents in rural area is important to LRF. A quad bike council might be one way to bring about recurrent discussions and to monitor measures taken regarding safer ATV use. However, the council's composition must be the right mix of users, industry representatives, public authorities and organisations.
- TFF – The Swedish Motor Insurers intends to get involved through annual meetings with affected actors.

# Quadricycles, mopeds and engineering vehicles with bodywork

Quadricycles, mopeds and engineering vehicles with bodywork are not currently very common, neither regarding registrations nor accidents. More and more actors are now offering quadricycles and mopeds with bodywork. Side by sides (SBS) with wider wheel bases, protective cages and belts are also becoming more common. This means that we need to follow the development of these vehicles and influence the demand for safety systems, primarily active ones, but also passive. We also need to make sure that the group can be monitored in our data systems, so that we have better data for analysis in our forthcoming strategy review.

# Need for research and innovation

**The prioritisations that are made shall be based on facts and scientific grounds. As mentioned in this document, knowledge about measures and their connection to road safety is lacking in many cases.**

**Some important research and innovation areas are:**

- accidents involving unregistered quad bikes
- the effects associated with a well-developed and modernised training system
- the effects associated with various roll over protection structures
- evaluations of the effects of different eCall systems

**Measures:**

- During 2014, the Swedish Transport Administration intends to initiate and finance three research and innovation projects within this area.
- LRF has previously initiated projects for the testing of roll bars and other smaller research projects concerning quad bike usage. But more research is required, especially regarding the protective effect of different roll bars in our Nordic terrain. LRF intends to help highlight the need for this research, in various contexts.
- TFF – The Swedish Motor Insurers: Länsförsäkringar intends to contribute through research in R&I areas that are considered important. The research will be conducted in collaboration with a university or other higher education institution.

### Accidents involving unregistered quad bikes

Accidents involving registered quad bikes are currently analysed, but accidents involving unregistered quad bikes or those with unknown registration are not analysed in the same way. Introductory information shows that the percentage of injured children is high in this group (40 per cent), but there is a significant lack of knowledge regarding the circumstances behind these figures.

### The effects associated with a well-developed and modernised training system

The training that currently exists for ATVs is, firstly, training for a conditional license, and then a commercial and non-compulsory commercial training. Within Säker skog, work is in progress to create a completely new training system, based on a large number of different training modules. The effects of future training initiatives are well worth monitoring.

### The effects associated with various roll over protection structures

Several sources suggest that the percentage of quad bike accidents involving a vehicle overturning is very high (60–70 per cent). The in-depth studies of road fatalities conducted by the Swedish Transport Administration and compiled by Folksam in 2013 show that nearly 3 out of 4 quad bike fatalities died in an accidents where the quad bike overturned, and that at least 1 in 3 of the total number of fatalities had the vehicle on top of them at some point during the accident. It can be seen that at least 1 in 5 of the total number of quad bike fatalities were recovered still under the vehicle There is a need to clarify the effects associated with different safety systems, such as physical roll over protection structures, anti-skid systems, anti-rise electronics and roll over warnings.

### Evaluations of the effects of different eCall systems

Quad bikes are often used on minor roads but, under certain conditions, also off-road. Even minor accidents occurring in desolate locations risk becoming serious, since rescue and care can often not be provided in time. The market is currently opening up for several different types of eCall systems which can reduce the response time for care. Initial calculations conducted by the analysis group have shown that eCall has the potential to reduce the number of road fatalities by 10 - 25 per cent. There is a need to clarify the effects associated with various eCall systems, in order to see which are suitable in a quad bike context.

# Annex 1

### Working method for the development of a joint strategyi

The work to develop a joint strategy has been conducted in project form with a working group and a steering group. The working group involved people with a variety of expertise and roles. Suppliers, market operators, public authorities and training organisations were represented. A special analysis group has been used. The Swedish Transport Administration has been responsible for project management.

### The work has been conducted in three main stages during 2013.

**1.** Stage 1 involved a summary of aims and objectives. Objective facts were processed in order to clarify what we knew – both individually and as a group, what had already been done and was currently being done, and what knowledge we were lacking. Documents were drawn up with both national and international facts.

**2.** The preconditions for the various types of vehicles were clarified and limitations were set. Possible solutions were listed, based on both previous and new knowledge.

**3.** Available effect links were acquired from the analysis group and the prioritised operational areas were established. The scheme for constant improvements was formulated.

The results have since been compiled in this strategy, which has been signed by the following organisations.

### Participants in the working group:

- Per Johansson, Ingemar Lindberg, ALF, ATV-leverantörernas Förening
- Carl Axel Sundström, The Swedish Work Environment Authority
- Micke Anderzon, ATV Sweden
- Lars Harlin, Dealy Sweden AB
- Anna Strandberg, The Swedish Consumer Agency
- Anders Danielson, LRF
- Bengt Svensson, National Police Board
- Maria Wedin, TFF – The Swedish Motor Insurers
- Niclas Nilsson, Swedish Transport Agency
- Peter Lundqvist, Swedish University of Agricultural Sciences, SLU Alnarp; Swedish Committee on Working Environment in Agriculture (LAMK)
- Tomas Nordfjell, Swedish University of Agricultural Sciences, SLU Faculty of Forest Science, Umeå
- Dag Abelsson, Sveriges terrängutbildares riksförbund (STHR)
- Arne Heimdahl, Svenska ATV-föreningen
- Tomas Gullberg, Säker skog
- Jörgen Persson (chair) and Roger Johansson, Swedish Transport Administration

### Participants in the analysis group:

- Matteo Rizzi, Folksam
- Johan Strandroth and Jörgen Persson, Swedish Transport Administration

### Participants in the steering group:

- Per Johansson, ALF
- Micke Anderzon, ATV Sweden
- Bengt Svensson, National Police Board
- Stig Brahn, Swedish Transport Agency
- Claes Tingvall – chair<br>Erik Norrgård – project owner<br>Jörgen Persson – reporter<br>Swedish Transport Administration

# Annex 2

## Summary of rules and conditions

| Quad bikes belonging to the vehicle type | | | | | |
|---|---|---|---|---|---|
| | **Moped class I** | **ATV** | **Quadricycle** | **Tractor** | **Public works vehicle I and II** |
| Driving on roads | Yes | (1) Only private roads | Yes | Yes | Yes |
| Driving off-road | On bare ground only in agricultural work or forestry or in certain work Section 1 ODA, Section 1 ODO | On bare ground only in agricultural work or forestry or in certain work Section 1 ODA, Section 1 ODO | On bare ground only in agricultural work or forestry or in certain work Section 1 ODA, Section 1 ODO | On bare ground only in agricultural work or forestry or in certain work Section 1 ODA, Section 1 ODO | On bare ground only in agricultural work or forestry or in certain work Section 1 ODA, Section 1 ODO |
| Protective helmet | Yes | No | Yes | No | No |
| Speed | Applicable speed limit Is constructed for 45 km/h | (2) On road 20 km/h Off-road applicable speed limit | Applicable speed limit | Applicable speed limit Is constructed for 30 or 40 km/h | Engineering vehicles class 1 constructed for speed in excess of 30 km/h Highest permitted speed 50 km/h engineering vehicles class 2 are constructed for a maximum speed of 30 km/h |
| Passengers | Yes | (3) Not on road, Chapter 5, Section 4 RTO | Yes, if driver is 18 years or older | Yes | Yes |
| Passengers on trailer | No, RTO Chapter 4, 15b | (4) Not on road Chapter 5, Section 4, RTO | No, RTO Chapter 4, 15b | (5) Only following inspection of suitability. Chapter 5, Section 1, VO | Only following inspection of suitability. Chapter 5, Section 1, VO |
| Driver qualification | (6) Turned 15 years old Driving license, with authorisation AM or higher | Turned 16 years old Driving license issued before 1/1/2000, or conditional driving license | (7) Driving license A1, A and B issued before 19/01/2013. After this date, only B | (8) Turned 15 years old Tractor license or driving license with authorisation AM or higher | Engineering vehicles I At least authorisation B engineering vehicles II 15 years old Tractor license or driving license with authorisation AM or higher |
| Registration obligation | Yes | Yes | Yes | Yes | Engineering vehicles class I, A public works vehicle class 2 can need to be registered, depending on its usage. Read more in TRA, Sections 12-13. |
| license plate | Yes | Yes | Yes | Yes | Engineering vehicles class I, engineering vehicles, class 2, can need to be registered, depending on their usage. |
| Vehicle tax obligation | No | No | Yes | Only class I tractors (tractors driven in traffic on public roads) | This depends on how the vehicle is used. See the Swedish Transport Agency's web site regarding vehicles liable to tax. |
| Traffic (third party) insurance | Yes | Yes | Yes | Yes | Depends on area of usage. See MTDA |
| Control inspection | No | (9) Yes, in certain cases VO Chapter 6 Section11 | Yes | No | engineering vehicles class I shall be control inspected. |

## Explanation of abbreviations

ODA – Off-road Driving Act (1975:1313)
ODO – Off-Road Driving Ordinance (1978:594)
RTO – Road Traffic Ordinance (1998:1276)
VO – Vehicle Ordinance (2009:211)
MTDA – Motor Traffic Damage Act (1975:1410)
Traffic Registry Act (2001:558)

[1] ATVs: May be used on roads other than private roads in order to cross the road or for the shortest distance possible, if the terrain is impassable.

[2] ATVs: On private roads that are rarely used for public traffic, the road's speed limit applies.

[3] ATVs: On private roads that are rarely used for public traffic, passengers are allowed.

[4] ATVs: On private roads that are rarely used for public traffic, passengers are allowed.

[5] Tractors: Inspection is not required for vehicles that are used for short journeys to and from the work place or between different parts of the farm

[6] Moped class I: Authorisation AM also entitles the holder to drive a class II moped, tractor or class II engineering vehicle (an engineering vehicle that is constructed with a maximum speed of 30 km/h)

[7] Quadricycles: Driving licenses with the authorisations A1 and A, issued before 19 January 2013 entitle the holder to drive a quadricycle, if the authorisation has not been withdrawn following after this date. Driving licenses with the authorisations A1, A2 and A that were issued on or after 19 January 2013 do not entitle the holder to drive quadricycles. Authorisation B is required for this.

[8] Tractors: Authorisation is not required for short distances to or from the work place or between different parts of a farm

[9] ATVs: Registered ATVs that are used in commercial traffic for personal transportation, and registered ATVs that are hired out to other users are to be control inspected.

### Unregistered quad bikes and ride-on toys

A quad bike that does not come under the categories of moped, quadricycle, tractor, public works vehicle or ATV is only permitted to be driven on specific, enclosed tracks. The requirements regarding driving licenses, registration or age do not apply there. It is the custodian, or the person who arranges the driving on behalf of under-age drivers who is responsible for ensuring that safety standards are acceptable, that insurance cover is sufficient and that helmets are used. There is no specific definition of what entails an enclosed track, but legal cases show that the determining factor is that the general public or outside traffic cannot come into the area. Land surrounding private houses, camp sites and airfields have previously been deemed not to constitute enclosed tracks. Rural areas used for organised motor competitions which have been enclosed with plastic tape and which are supervised by stewards have been approved.

### Ride-on toys

Ride-on toys are vehicles that cannot be driven faster than 6 km/h (approximately walking pace). It must have an electric motor and be intended for children up to the age of 14 years old. A child using a ride-on toy has the same obligations as a pedestrian has, in traffic. It is recommended that children using ride-on toys are kept under the supervision of an adult.

### Not ride-on toys

If the vehicle has an internal combustion engine it can never be classed as a ride-on toy, according to the Swedish Consumer Agency (KOVFS 2011:5). There are currently several products that are wrongly considered to be ride-on toys, such as pocketbikes, minimotos, children's snowmobiles or children's quad bikes. Anyone driving a vehicle that is not approved for use in traffic outside of an enclosed area can be fined. The products listed above are all included in this category. A custodian or other adult who allows a child to drive can be convicted for allowing unlawful riding. The penalty for the adult is a fine. There can also be other consequences for their driving license. The opportunities for the child to be permitted to take a driving test in the future may also be affected. Furthermore, if the child has turned 15 years of age, they can also be fined for unlawful riding.
The following vehicles are not classed as ride-on toys:

- Pocketbike
- Minimoto
- Children's snowmobiles
- Children's quad bikes
- Knattecross (children's motocross-type motorcycles)

### The Off-road Driving Act limits driving off-road

Text from the Swedish Environmental Protection Agency's web site, 2013:

ATVs or quad bikes have become increasingly more popular in recent years. The Swedish right of public access does not permit the driving of motor vehicles in the countryside. Depending on how they are registered, they may be used on roads or on specific tracks designed for motor vehicles.
The Swedish Environmental Protection Agency is the government environmental authority responsible for the off-road driving legislation.
The Off-road Driving Act prohibits, with certain exceptions, off-road driving on bare ground with motor-driven vehicles.
The prohibition is in order to protect the countryside.
The prohibition also applies to the land-owner. With the exception of driving that is conducted in connection with agriculture and forestry, the land-owner may not drive on his own land, neither can he give permission for someone else to do so.

### What is a motor-driven vehicle and what is off-road?

"Motor-driven vehicle" is a collective term for all types of vehicle that are powered by an motor or engine. This therefore covers cars, motorcycles, mopeds, tractors, engineering vehicles and off-road vehicles such as snowmobiles and other ATVs. The term "motor vehicle" only covers cars, motorcycles and mopeds. In the legal sense, off-road is essentially all natural land, not just "woods and fields". Park land, grass lawns, paths, exercise tracks and hiking paths can also be considered "off-road". For this reason, no prohibition signs are required regarding, for example, the driving of mopeds on exercise tracks or hiking paths.

### Exceptions from the prohibition

Driving that is directly connected with agriculture or forestry is exempted from the general prohibition of the Off-road Driving Act. The Off-Road Driving Ordinance contains other exemptions from the general prohibition of the Off-road Driving Act. These apply, for instance, to driving:

- in connection with various types of project work
- in respect of the rescue services and in the event of a medical emergency
- associated with the recovery of bear, elk, deer or wild boar that have been shot
- to a certain extent, in association with reindeer farming
- relating to work in parks and outdoor recreational areas
- in areas specifically organised for competition or training

The county administrative board can decide on further exemptions in specific cases, for example, for car parking in connection with orienteering competitions or other events.

# Annex 3

## Relevant studies and data

**Swedish:**

- Frisk, S. & Nordfjell, T. 2012. Utvärdering av skyddsbåge till terränghjuling. Report PX10001. Svensk maskinprovning.
- Lundqvist, P. 2010. Fyrhjulingar och skaderisker – inventering av problem och åtgärdsstrategier, SLU Report 2010:28
- Johansson, L & Rönnbäck, S. 2010. Hur kan vältningar med fyrhjulingar förhindras. Designhögskolan Umeå universitet.
- Edenhamn, A. 1990. Skyddsbåge på terränghjuling. Uppsatser och resultat nr 174. Institutionen för Skogsteknik, SLU, Garpenberg.

Earlier background material that largely replaced by the Project updated material:

- Nordfjell, T. 1995. ATVs in Forestry: Risk of accidents, ergonomic problems and possible solutions. Uppsatser och Resultat nr 283. Institutionen för Skogsteknik, SLU, Garpenberg.
- Matteo Rizzi, Maria Olai Vectura 2008 Djupstudieanalys av vältning i olyckor med fyrhjulingar 2004-2009.
- Sofia Hansson, Kertin Ahlm, Per-Olof Bylund 2008. Akut-och katastrofmedicinskt centrum Norrlands universitetssjukhus Umeå. Enheten för rättsmedicin, Institutionen för samhällsmedicin och rehabilitering, Umeå universitet. Dödliga skadehändelser i samband med färd på "fyrhjuling" 1992–2007. Report no. 141
- Per- Olof Bylund, Kerstin Ahlm. Akut-och katastrofmedicinskt centrum Norrlands universitetssjukhus Umeå. Enheten för rättsmedicin, Institutionen för samhällsmedicin och rehabilitering, Umeå universitet. Icke-dödliga skadehändelser i samband vid färd på "fyrhjuling" 1999–2007. Report no. 140

**International:**

- Aus. 2013. Rechnitzer, G., Grzebieta, R. H., McIntosh, A. S. & Simmons, K. 2013. Reducing all terrain vehicles injuries (ATVs) and deaths – A way ahead. Proceedings 23rd International Technical Conference on Enhanced Safety of Vehicles (ESV) Seoul, Korea, May 27-30, 2013.
- Aus 2012, Dr Scott Wordley and Dr Bruce Field. Quad Bike Safety Devices: A Snapshot Review, Department of Mechanical and Aerospace Engineering Monash University.
- Aus 2012 Comments on Monash ISCRR report by Wordley and Field(2012) report.
- Aus 2012, THE HON SHORTEN MP Minister for Employment Workplace Relations. Public discussion paper Review of design and engineering controls for improving quad bike safety.
- Aus 2009, HWSA Heads of Workplace Safety Authorities. Industry strategy for reduction of fatalities and serious incidents resulting from on-farm use of quad bikes.
- USA 2008, Criminal Justice Statistical Analysis Center West Virginia Division of Criminal Justice Services & West Virginia Bureau for Public Health. All-Terrain Vehicle (ATV) Deaths and Injuries in West Virginia. A Summary of Surveillance and Data Sources.
- USA 2013, Sarah Garland U.S. Consumer Product Safety Commission. Annual Report of ATV-Related Deaths and Injuries 2011

TRAFIKVERKET

Swedish Transport Administration, SE-781 89 Borlänge, Sweden
Visiting address: 1, Röda vägen, Phone: +46-771-921 921

www.trafikverket.se

TRAFIKVERKET. PUBLIKATION 2017:???. FEBRUARI 2014. PRODUKTION GRAFISK FORM. TRYCK: INEKO.