It is important the guidelines give a clear understanding of what fluxes the chapter deals with, what is included or not. For CO_2 this is complicated since there are both uptake and emissions in the ecosystem. Chapter 2 deals with only to my understanding *CO_2 emission from the soil carbon pool in drained organic soils*. It is thus important to stick to this (and not include forest biomass and litter etc.). However this is sometimes not clear and explicitly described in the text, such as carbon content of a forest canopy should not be included, since this is covered by chapter 4 in 2006 GL. But for table 2.1 it is not clear how the EF was constructed since the papers upon which the EFs are based use different methods and include different parts of the ecosystems, not explicitly CO_2 emissions from soils. I have scrutinized the papers on which the EF for boreal forests is estimated upon. And here are my findings:

Lindroth et al. 2007 (should be 2008). Three forest stands in Sweden where two are situated in the northern Boreal part of Sweden. All three are on podzolic soil and drained. The most carbon rich site is the one that is drained, but this is in the south of Sweden. Micromet measurements. The rate of change in soil C was estimated as a difference between the annual biomass increment and the net ecosystem productivity. This showed that all sites lost C every year, from the soil. The highest was 0.2 tonnes C ha-1 yr-1, from a northern site Knottåsen. This study may be a good one. but EF for organic soils is more dubious.

Lohila et al. 2007. This is also a study using micrometeorological measurements, showing NEE data. The Pine forest NEE showed to be a small source of C, 50 g CO2 m-2 yr-1. This study could not be a basis for EF for soil emissions, since it is the whole forest system that was measured and the soil component could not be extracted. However they refer to another study in Finland where soil emission measurements were performed, Mäkiranta et al. 2007 (the same issue), using chambers on bare soil, and concluded the soil emissions were 2-5 tonnes C ha-1 yr-1. The soil was drained peat formerly used for agriculture but not afforested. This may be a better study to base EF on.

Minkkinen and Laine 1998. This is a study on peat subsidence and C density change after drainage. The result is an uptake of C in the peat after drainage and forest plantation. This density change method for emission estimates, can it be trusted?

Minkkinen et al. 1999. Also a study using density cores for measuring change of C-content of peat. The peat C balance, from a small accumulation of 70 g m2- yr-1 to loss of 60 g m-2 yr-1. But the method is difficult to translate into emissions, may not be applicable.

Von Arnold et al. 2005. Soil chambers where used to measure soil respiration on forest floor, drained peat. Half the respiration was assumed to origin from plant root respiration, why the oxidation of organic matter was 4-11 tonnes C ha-1 yr-1.

Laurila et al 1997. This reference was not checked.

The EF number for Boreal forest is in table 2.1 set to -0.609 tonnes C ha-1 yr-1 (un uptake), which includes litter and coarse woody debris. This uptake could be disputed since the references I checked showed in total a smaller uptake than that, and this was when the whole ecosystem was included (NEE) or measured by use of the bulk density estimating carbon change. In contrast, the soil emission measurements show emission of 2-11 tonnes C ha-1 yr-1 (Mäkiranta et al. 2007, von Arnold 2005). This is similar to other temperate and tropical systems. And it could also be questioned why to include litter and coarse woody debris into EF for emission from the soil carbon pool, this should result in double counting since it is a pool already included within 2006 GL chapter 4 forest land.