

Infrastructure Guideline – Additional information for evaluation

Meeting Summary: The entire committee agreed that the current recommended percent infrastructure (<3%) could be unreasonable at small harvest sites. However, most agreed that the available information was insufficient to establish a size for small harvests where a higher percent would be appropriate, nor what that percentage might be as factors other than harvest size influence landing size. There seemed to be two possible options discussed at the meeting: 1) do nothing and keep the existing guideline as is, or 2) create a new category of small harvests where a larger percent of the harvest area could be used for infrastructure. Option 1 would likely minimize impacts to productivity, but there is the potential that those operators incapable of meeting the guideline could be discriminated against due to certification standards. Option 2 could be more reasonable if justifiable cutoffs are identified, and could also reduce the possibility of operator discrimination or unreasonable corrective actions from certifying bodies.

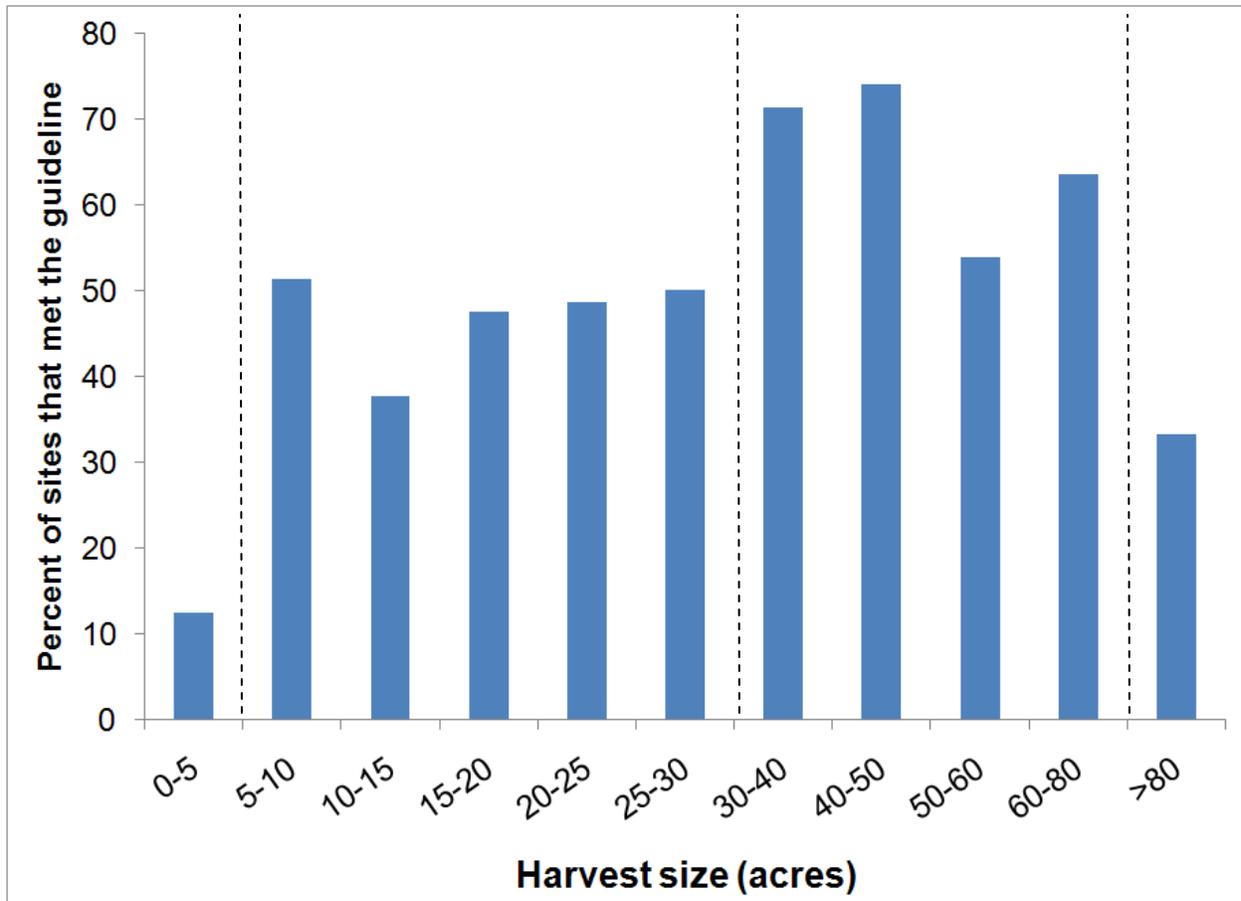
Another option is to examine setting a defined *absolute* landing size since harvest area does not seem to have strong influence on the *relative* amount of landing area. Any recommendation could also be placed in context of landscape outcomes rather than site-level. Such a recommendation could be “Minimize total infrastructure area. Infrastructure should not exceed XX% across a given ownership or region”

Requested information from SL Committee at last meeting

- 1) What do monitoring contractors include in estimates of landing area?
 - All of the area with obvious use for operations including loading areas, chip piles, slash piles, log storage (decking areas). Area is defined based on surface characteristics, where areas with heavy cull material (including chip and slash piles) and obvious compaction are included.
- 2) Can we identify any differences between operations that meet or fail to meet the guideline?
 - I was unable to identify any differences in operations between the two groups with the monitoring data from 2009. I did identify a difference among landowner groups which is discussed below.
- 3) What are the impacts to productivity associated with landing areas?
 - I sent Dale 4 peer-reviewed papers related to landing/skid trail impacts on productivity. Please let me know if you would like me to send you copies of these papers.

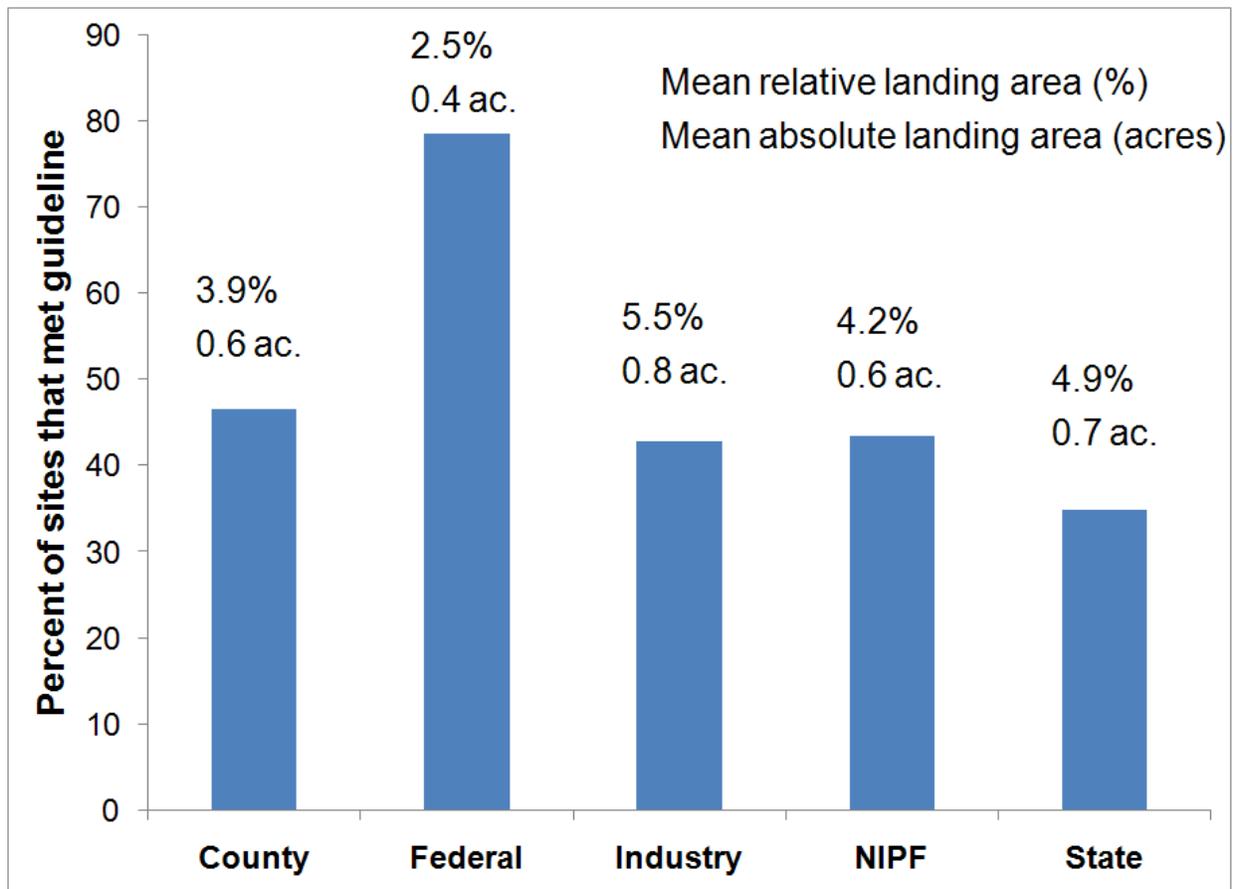
Additional information

- 1) Percent compliance by 5 acre harvest area increment (finer resolution than earlier)
- 2) Percent compliance by ownership category on harvests <30 acres in size
- 3) Cumulative percent compliance of landing area for harvests < 30 acres in size
- 4) Scenarios of potential area impacts if guideline was changed.



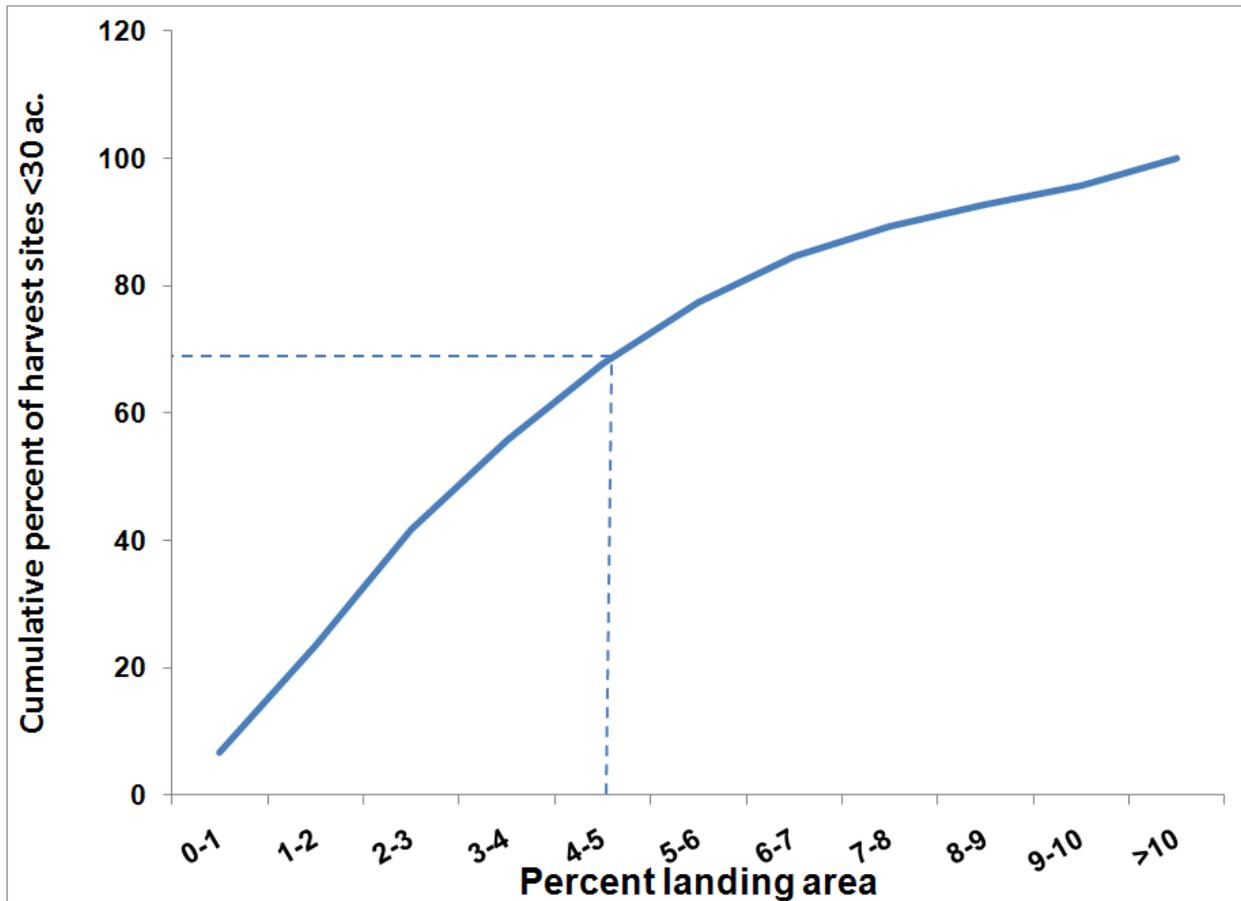
Percent of sites where landing areas was less than 3% of the harvest from the 2004-06 and 2009 monitoring data.

I took the data from the scatter diagram and plotted it on a histogram to determine if obvious break points for a multi-tier recommendation could be identified (note that increments are not equal as I did a rough adjustment to keep the number of sites within each increment similar). In this histogram, there are 4 harvest size ranges where changes in compliance occur. The first is at very small harvests less than 5 acres where the guideline is clearly unachievable. The second is for harvests from 5-30 acres where compliance is approximately 50% over the interval (as discussed at the last meeting). The third is for harvests ranging from 30-80 acres where compliance is highest. The high compliance area is followed by a large decrease in compliance for the largest size harvests. If the committee wants to create a two-tiered recommendation, it appears that a cutoff of 30 acres would be more justified than the 20 acres suggested by MFI/TPA. Clearly, this would not address low levels of compliance at the largest harvests.



Percent of sites with <3% of harvest area in landings by ownership category for harvest sites less than 30 acres in size from the 2004-06 and 2009 monitoring years. Values above each category are the mean landing area as a percent of harvest area and absolute area in acres.

Given the potential for a two-tiered cutoff at 30 acres, I attempted to determine other factors that contributed to meeting the guideline in this increment. As we discussed at the meeting, factors such as topography, volume, product sorting, equipment type, and hauling frequency likely contribute to the difference. I was unable to assess the contribution of these factors from the monitoring data, but I did find that ownership influenced compliance, where federal harvests had a much higher level of compliance than other ownerships. I followed up with timber sale administrators on the Chippewa to see if they had any insight into why this might be. Some possible reasons they provided were 1) landing location and area has to be approved by the administrator, 2) they work closely with industry foresters who do a lot of ground work, 3) commonly work with same group of loggers, and 4) may conduct more frequent inspections than other ownerships because they are not allowed to scale wood. The high compliance on federal lands suggests that the existing guideline can be met on small harvests if effort is made to achieve it.



Cumulative percent of harvests less than 30 acres in size by relative landing area increment for sites from the 2004-06 and 2009 monitoring years.

This figure can be used to identify the level of implementation that would be achieved for various amounts of allowable landing area (assuming data from past monitoring years is indicative of future years). The curve can also be used to identify a point of diminishing returns, where increase above a certain point on the curve results in lower additional compliance for each unit increase in allowable infrastructure. This point appears to occur somewhere around 5% relative landing area

Potential impact scenarios of change in allowable infrastructure

The following scenarios are all based on a 2 tier allowable infrastructure, with delineation between tiers at 30 acres.

Scenario 1

Assumption: No change in behavior. Changing the allowable infrastructure increases compliance, but does not affect behavior.

Additional impact: None

Scenario 2

Assumption: Those currently meeting the guideline will increase infrastructure area up to the new limit, but those currently exceeding it will not alter their behavior.

Additional Impact: 0.2% of total harvest area for each 1% increase in allowable infrastructure.

Explanation: Although harvests <30 acres in size constitute ~75% of harvests in the State, they only account for 40% of the harvest area (mean for 2004-09). Of that area, approximately half currently meets the guideline, resulting in 20% of the annual harvest area subject to the increase.

Scenario 3

Assumption: Those currently meeting the guideline will increase infrastructure area up to the new limit, and those currently exceeding it will also increase by the same increment.

Additional Impact: Equal to the increase in allowable infrastructure

Scenario 4

Assumption: Those currently meeting the guideline will increase infrastructure to the new limit, while those currently exceeding the guideline will decrease infrastructure to the new limit.

Additional impact: 0.04% of total harvest area for each 1% increase in allowable infrastructure.

Explanation: approximately 40% of harvests <30 acres have infrastructure greater than 5%, which would offset a majority (~80%) of the increase associated with scenario 2.

Assessment

The above information provides some additional context for evaluation, including identification of possible points for definition of a two-tier recommendation and new allowable infrastructure. Depending on which scenario you think most likely, additional impacts to productivity could be negligible or of modest impact at the statewide scale. Questions raised at the meeting regarding why some are able to meet the guideline on small harvests while others are not remain unanswered. The reasons for high compliance on federal land provided by the Chippewa foresters suggest that the level of oversight plays a large role, but other factors that differ among ownerships could also contribute to the difference (e.g., more partial cuts on federal land).

If the Committee wanted to create a two-tier guideline, a defensible recommendation would be delineation between tiers at 30 acres, and an increase to 5% allowable infrastructure for those sites in the smaller tier. Such a recommendation would be based on the monitoring data alone (i.e., points where implementation rates change), and not physical criteria such as the amount of area needed for a well-planned logging operation. It is likely that some additional impact to productivity will occur if this change was made (cost), but the potential for unreasonable actions associated with certification would be reduced (benefit).

Other issues besides smaller harvests are those relating to the increasing landing area over time (since monitoring began), and the low compliance at large harvest sites which make up a large portion of the total harvest area. These issues will need to be addressed if trends from past monitoring data continue.