Monster Hunt BotyMan Paths Checker Tool
aka *MHBotyMan V5*
- Recycling style and Free Movement -
- Enhanced seeking a la XC_MonsterHunt -
UT'99 ready

Description:
This is a Mapper and Admin tool for testing A.I. Paths in Monster Hunt, but these V3 to V5 might be used even in default MH servers if some stock files are fixed, or using XC_Engine for tweaks.
If you read well and know troubles around the rest of MH versions you understand that it do works ONLY in original MonsterHunt game-type and/or similar with originals - version for coders also it's included.

How does it work:
It is using several mutate commands (might not be always cute but it's simple). It works in 2 ways:

1. Trying to see a normal route to whatever Next MonsterWayPoint if it's not screwed by any early touch (Position 3 before Position 1 and Position 2) of a future MonsterWayPoint which can mess things up. If all MonsterWayPoints have been visited or whatever nasty "Touch" occurred then it might lead in finding MonsterEnd trigger - the second goal for A.I.

2. Trying to react as DM-like based on pickups or such "things" and then we want to know if several points are available, linked or not. We mark an initial spot in Level and then we try to reach there using paths from another Location which doesn't have a direct contact with that initial spot.

Extended description **1.**
So, attempting to check map without Bot loaded is more relevant to not see things screwed in any way. Relaxed and happy, we can input in console (not saying as a message)

<p style="text-align:center">mutate mebot</p>

Consequences:
- if first Position of a MonsterWayPoint is available and paths leads there correctly, a Red Circle Marker spawns in a closer NavigationPoint and then we can see there first NavigationPoint available in PathNet, also depending on routes number we might notice some Red Circles numbered describing precached points computed by engine - will show some road. If MonsterWayPoint in purpose is not found yet, mutator will use original hunting brute force seeking, if this is the functional paths finding solution, probably Bot will not work in original Monsterhunt unless something like XC_EngineV24 will accelerate these devs, a message it's shown accordingly. If results are not available in any way, mod will switch to slow mode seeking routes from time to time remaining active in background. If suddenly a BlockedPath or such stuff unlocks routes, in aprox. next 3 seconds we have Red Circles showing up pointing Routes. So it doesn't need multiple commands each time for checking spots, just to walk around slow and nice and if a sudden route gets closer it brings Red Circles into Path-Net showing the way. Else if we scan from a nasty spot,

it doesn't show anything, these Red Circles will get vanished until we get
into an available location. If we are back closer to normal Path-Net, they
will return. Positions pre-cached shown with Red Circles won't be updated
when we are dead or jumping constantly. Pawn Falling or Dead cannot roam
so it's pointless to operate engine useless. If everything goes normally
you can move toward around circles.
- if MonsterWayPoint is Reachable, an On-Screen message is shown;
- if MonsterWayPoint is closer and visible but not reachable and we were
brought using hunting brute force we are turned to said location;
- if you have troubles in detecting where is that reachable
MonsterWayPoint you can use a command to "unhide" A.I. MH goals

<p align="center">**mutate visiblestuff**</p>

Then MonsterWayPoint(s) and MonsterEnd(s) are going to be visible. If you
don't need them visible you can use

<p align="center">**mutate hidestuff**</p>

And then we have them hidden back.
- if MonsterWayPoint is not matching controller need or doesn't exist, mod
will debate MonsterEnd in the same way. First mod will try to find paths
and if there are not any sort of them, mod switch to slow mode in
background. If a smarty pathing unlocks end then mod starts to show Red
Circles matching route-cache points. Also it won't switch in slow mode if
there are multiple ends and None of them able to be found, only if we have
at least 1 MonsterEnd reachable in a way.

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Extended description **2**.
Another formula is available as follows.

<p align="center">**mutate mytarget**</p>

spawns a Target Beacon in spot for human tester exactly in that Location
where command has been fired. The future deal for next moments is to find
that Target Beacon from a random point of map where we are suspecting
paths broken, and for this job we will use

<p align="center">**mutate mypath**</p>

driving tester to Target Beacon ignoring MH objectives if previously were
triggered or not. Messages about problems are On-Screen. There we can see
spots, geometry, etc.
Target Beacon stays until Player Tester is dead - suicide included in case
of depression (or a random depressurization).
By example you cannot see any path in empty "Maps" or those doing sucks at
paths, air paths or ghosting or bitching with Movement Physics in loser
style.

Extra Feature **3**.

<p align="center">**mutate stopnav**</p>

Will stop any Navigation from any kind and it will be inactive until next
command. This can be used if we don't have luck from any kind or we simply
wanna play as long as we could see Map as a good one.
These commands can be used unlimited for many spots and then trying to
reach normal MH goals by switching through these mutate commands.

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To summarize:
mutate mebot - debate Normal Bot A.I. routes in a MH map running a MH
game;
mutate mytarget - set a target spot for testing;
mutate mypath - try to find target spot tested;
mutate visiblestuff - will unhide MH A.I. goals;
mutate hidestuff - will hide MH A.I. goals;
mutate stopnav - will deactivate job by disabling showing routes.

Aside
mutate helpme
command will broadcast help commands messages on screen (that can be
better visible in console fired and game log as well.

How to work with this tool:
Throw these 2 files **MHBotyMan5.u** and **MHBotyMan5.int** in system folder.
Start a Practice session and load mutator called something like

- MonsterHunt TestPathsTool V5 -

Rename that crap if you don't like that name by editing INT file.
Pick the map for testing and go get busy.

Other techs:
This mod-tool starts after minimum of 2 seconds from starting a
Practice game. Mutator uses to spawn Red Circles markers at once with
player storing them in "warehouse" wrapped. When a route has been found
then they are moved there visible. If job ends they go back in storage
area. NONE of them is intended to be destroyed if player is still in game,
but Target Beacon is one of things that will disappear at player's death.
Purpose being to test map, we don't speak about battling - just checking,
so I think is not a very need for recycling Target Beacon - it's only one
after all and it's not a very dynamic thing as Pawn's Route-Cache.
It's good to know that we **don't need** any longer to **Touch** Red Circles
markers as in other versions or in default UT testing stuff (RememberSpot
and ShowPath). Circles are moved around player depending on how reachable
are NavigationPoint/s showing the route to the target. So you can move
free and Red Circles are just a company being updated each time when we
can see paths to follow. In a little larger maps (like Arden+fix1) we can
see paths marked with these Red Circles like a snake up to Houses area
where Megatitan is located. Also in this map you can walk away from paths
and then activating MH Navigation with **mutate mebot.** A couple of seconds
later you can come slowly to starting location, and then if Navigation is
Reachable (Red Circles suddenly are showing up) you can figure how far can
be placed PathNodes from each-other in purpose to have a truly optimized
Paths-Network without excessive CPU load.

V3 related updates:
Small changes in "mutate" (return was never good after all). V2 works
for tests practiced OFF-Line. V3 is functional even ON-Line with all
mutate stuff and without to stuck itself when it is combined with the
rest.
Sudden Reachable stuff is pointed as well (MH-IslandInvasion...
whatever, I guess - there finding end in old MH by low skilled players was
annoying - it doesn't have valid routes after all). Such points with no
paths but able to be found unexpected might be announced as well.

V4 related updates:
- RouteCache from Pawn Seeker are not suppressed any longer - looks like
it does affecting in game garbage collector types.
- Changed rejection methods in case of bad environment.
- Added a string constant version "4.00" in case of external needs.

V5 related updates:
- Mainly checks will use actor finding instead of Location finding. It's

FindPathToward not FindPathTo which is intended for seeking a Location not an actor.
- Using another testing method based on internal Engine Brute Force when pawn is hunting – XC_MonsterHunt uses this feature and has better results that original MH – if this is current seeking method, message is shown accordingly.

Cons:
This tool can be used even in servers if is declared in ServerPackages. If UT server uses default Engine with no fixes, WarpZoneMarker might crash game. My server has no problems here...

Example from another version of Arden map a bit improved in OutPost and Castle:

And getting Nodes:

As you might figure I can move through Nodes normally and they are updated "on-fly". This image also shows that an InventorySpot is a part of Network and it should not be broken or else return a game-crash if paths are not rebuild properly in Editor.

If these are not visible in whatever random map we might not really speak about Bot Support. There can be good a test with Target Beacon at **mutate mytarget** and then checking with **mutate mypath** commands. When Red Circles are gone we speak about a broken Network.

Note for 2019:
XC_Engine v24 has a superior power toward pawns, this tool is showing that. A large map which has no response in original UT, now it's operational without too many headaches.

The reality:
Excuses for blabbering MH paths are no longer accepted.