natFX

OiKO

The plains of Africa with natFX trees

natFX v1.5 for 3ds max used to populate trees and plants in Oiko's Serengeti.

Paris based Oiko Entertainment, a first class development studio whose titles and gaming philosophy relies heavily upon integrating action/adventure with the natural environment is currently developing Serengeti, the first ever 3D real-time game to use Africa as its setting. Combining the mysticism and spiritual essence given to the setting along with the natural beauty afforded by Africa's savannahs, Serengeti's numerous missions iintertwine the player with the life of the park, from capturing sick animals, to recuperating the park's toursit industy, to tracking rare animals and neutralizing poachers, mercenaries and even kidnappers.

Weaving together plot and setting, Oiko Entertainment required a tool that would be robust enough to generate the trees specific to astral Africa and saw that solution in natFX v1.5 for 3ds max. Working along with Bionatics and the CIRAD, France's largest agronomic research center, a team of scientists were sent to Africa to study the vegetation for integration into natFX and subsequent use in Serengeti. A large undertaking that involved a dedicated team of researchers from both the CIRAD and Bionatics, Oiko Entertainment were then able to generate the required botanically correct procedural trees for their project.

"He who says *natural world*, also says a lot of vegetation especially if we want a realism in an environment such as wild Africa. For each plant species, it is necessary to determine its state in the dry season, spring or the wet season. We also need to vary the plant age so as to have a diversity according to size and apparence of these 37 species we have in the game. It is for this reason we chose Bionatics' natFX," states Frederic Tibout, President of Oiko Entertainment

Serengeti's gameplay is essentially founded on the near-perfect representation of

the natural world. The ability to hide behind bushes, tall grass, to take cover in groves and behind tall trees demonstrates the vital importance and direct implication vegetation plays in Serengeti.

"The vegetation is more than just scenery, it's really something that serves a purpose in terms of gameplay," adds Tibout. A perfection and eye of detail sets the game apart and keeps Olivier Train, project art director, busy populating canyons, hillsides, marshes, lakes and river beds with vegetation with a specific set of development requirements that natFX offers.

One such function is the hybrid 2D/3D mode that drastically reduces polygon count while retaining aesthetic quality and the impression of 3D. The hybrid 2D/3D is an exclusive technological feat that enables Train to compute trees with low polygon counts by ingeniously combining billboards (2D planes) with full geometry. All automatically. Along with sets of level of detail adjustments for both the 2D and 3D elements, Train can model a tree according to its importance (distance factor) in the scene.

Overall, vegetation in Serengeti consists of three levels of

Oiko Entertainment. 2003.

3ds max™

**Connect to www.bionatics.com
to get in touch with Bionatics !**

BiOnatics

"We have saved considerable on production time thanks to Bionatics and Bionatics is really working with us to satisfy our requirements."

Olivier Train, Lead Artist/Art Director - Oiko Entertainment

details (LOD). The first LOD is full geometry or 3D with 2-sided billboards for a tree totaling about 500 polygons. The second LOD is for trees set at a distance of about 30 meters. These trees contain approximately 200 polygons and the third LOD is a billboard map placed on a face that

Oiko Entertainment. 2003.

is then oriented in relation to the camera. Together with a blend, the trees pass without notice from differing levels of details. "As a modeler, it would have been too difficult and too time consuming to create all the trees by hand," states Train. "We have 37 species representing 10 regions typical of this zone in Africa."

With natFX, Train is able to generate a series of procedural models from which he simply picks the one that pleases him the most. He is also able to change its season and age to his liking and then has a graphic artistic do some final touches before integrating the final model into the scene.

"To have a traditional graphic artist research, scan and model all the trees would take too long. We needed a middleware to do the job. We have saved considerable on production time thanks to Bionatics and Bionatics is really working with us to satisfy our requirements," Train states. Tibout concurs, by having traditional modelers generate by hand the trees required for Serengeti would not only have been too time consuming, it would also be a task that most modelers are not too passionate about.

"natFX therefore provided us two things," remarks Tibout. "First of all the possibility, thanks to Bionatics' virtual seeds, to already have existing realistic African species of plants without having to do the documented research and modeling attempts and two, a total reactivity with a process that now only takes about 10 minutes to create

and recreate wholly from one baobab species, from one acacia or another numerous variations of the tree."

natFX was successfully embedded into the workflow to optimize production. Essentially, this means that specific generated trees and bushes are automatically exported and directly integrated into alienbrain, Oiko's motor.

By working with its clients, Bionatics is able to develop the best plant software on the market Special requirements and needs suited for a client make for a better product and a good working relationship. "We are happy with Bionatics and not only with the software. Bionatics was able to adapt to our needs. They are working with us by developing natFX to fit our requirements, " states Tibout.

At Train's request, Bionatics developed a system by which objects are assigned by material, a tool that helps optimize workflow. Train also requested that Bionatics generate the billboards from the hybrid tree to keep lighting harmonious throughout the model to which Bionatics complied.

Set to release in the beginning of 2004 on PC and X-box, Serengeti will certainly be a first of its kind. "We've already just about finished all the vegetation," says Train. This of course enables Oiko to focus its time and energy on something else.

"We have set upon doing something that no other game has ever done. Set in Africa, it is an opportunity to use an original universe, different from the usual ultra-realistic

Oiko Entertainment. 2003.

war games which typically occur in similar settings." Tibout. With natFX, Oiko is able to set a new standard in 3D real-time gaming.